



L. JEAN BOGERT

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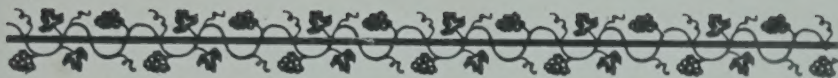


Good Nutrition for Everybody

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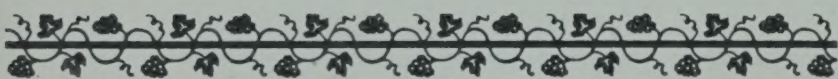
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Good Nutrition for Everybody

by

L. JEAN BOGERT, PH.D.



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FOREWORD

WE LIVE in a stirring period of history when it is the duty of every one of us to keep physically fit. The housewife now has a more important role to play than ever before. The health of the members of her family is in her care, for they can be strong, happy, and efficient only if she provides them with the proper diet. In addition, the government asks her to conserve certain foods, which either are scarce or are needed for shipment abroad, and also to conserve money to pay taxes and to buy bonds. In spite of efforts, food costs have risen considerably. Only some knowledge of the science of nutrition can make scarcity of some foods, coupled with a food budget that buys less, relatively harmless. The recent wave of popular interest in nutrition is eloquent testimony that the housewife wants to be equipped to carry out the responsibility intrusted to her.

However, she does not need to know much about calories or how to count protein and minerals in grams, or vitamins in milligrams or units, in order to safeguard the nutrition of herself and family. She should know nutrition in terms of food—which types of food can be depended upon to supply the different nutritive essentials, how much of them will be required to provide an ample day's quota, which foods will furnish an adequate diet at least cost,

and what foods may safely be substituted for other foods that are unavailable or expensive. To present this working knowledge of nutrition is the duty of nutritionists—a duty which the author has endeavored to fulfil in this book.

Yet something more is required in order to put the principles of nutrition into practice. Not only must the right foods be bought, but they must come to the table in appetizing dishes, attractively grouped in meals. It is essential that the housewife should know not only what to do but how to do it. For this reason menus are given as illustrations along with the text, and some selected recipes are given in the back of the book.

Good nutrition may be attained through a variety of food programs which will differ with income, section of the country, and individual tastes. The menus and recipes presented here are adapted to meet the special conditions of the present emergency. In happier days and under less stringent economic conditions, many persons will wish to use choicer cuts of meat, more sweets, and richer desserts, which is all right if done in moderation. But many of the foods that are suggested for present-day use are vitamin- and mineral-rich foods, whose use makes for health at any time. Thus diets which we accept now as emergency measures may be the means of teaching us to like, and inducing us to use more liberally, some of the “protective” foods that we have been inclined to neglect.

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WHY CHANGE OUR FOOD HABITS?

MUST we alter our food habits to meet a changing world? Probably, and for several reasons. Some changes are likely to be forced upon us because of scarcity or expense of well-liked foods. We may learn to like and eat more of other foods when we appreciate their importance for health. Mr. Average Man often says: "Just give me a juicy steak with French fried potatoes, some pie or ice cream, with coffee, and I feel well fed." But his wife is likely to remind him that his waist measure is increasing and his vigor diminishing, and that her food budget cannot run to steaks frequently these days.

"We are what we eat" is an old but true proverb. Following the best kind of diet cannot absolutely guarantee health, for many are born with physical handicaps, accidents happen, and germs lurk about; but a lifetime habit of taking a poor diet is sure to result in ill-health. A strong body cannot be built without foods that carry body-building materials, nor can health be maintained without the necessary body fuel, minerals, and vitamins provided in foods.

How difficult it is to keep a courageous spirit in a sick body or to accept work as a challenge when energy flags and vitality ebbs. Many persons never know what it is to enjoy "buoyant" health, yet they

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could change this condition if they would change their food habits. The morale and efficiency of a nation rest largely upon the health of its citizens, and the hopes of its future depend upon maintaining a high standard of nutrition among expectant mothers and among children.

Why are so many persons ill nourished or under-nourished? Is it because it requires special skill to plan a proper diet? Primitive peoples, with no knowledge of food values and often without wide choice of foods, are usually strong and well. Civilized man has come to like and to depend too largely upon refined, canned, and preserved foods. We need to redevelop a liking for foods in their natural state and for a diversity of foods. This does not mean that we should subsist entirely on raw foods; even primitive peoples have found that some foods are more palatable and better digested when cooked. Under present-day marketing conditions, foods that have been canned, or preserved by other methods, are often necessary and very useful. Such foods are usually similar in nutritive value to fresh foods that have been cooked. Yet eating some foods raw is helpful to health, since certain food essentials may be lost in cooking processes.

The trouble with Mr. Average Man's pet dinner is not with the foods chosen, which are good in the proper time and place, but lies in the fact that these foods alone will not supply all the needs of the body. Many different substances must be furnished by the

diet in varying amounts, to maintain sound bodies. Some foods carry much of one essential substance but little of others. A person may feel satisfied when his body cells are starving for some unobtrusive substance that is required in small amounts. This is what has been called "hidden hunger." In order to make sure of getting a "balanced" diet that will meet all the body needs, some training in how to choose foods wisely is a great help.

However, there is no use in telling people that they should eat certain foods if they have not enough money to buy them. Much ill-health resulting from poor nutrition is due primarily to poverty, though lack of education is a contributing factor. Some of our best foods, from the viewpoint of what they supply to the body, are relatively expensive; yet cheaper foods will often do almost, if not quite, as well. Obviously, low-income groups are especially in need of instruction in how to get the best food values for their money if they are to have a diet adequate to meet all the body needs at low cost.

With food prices sharply rising at present, many foods that were formerly used liberally by families with moderate incomes can now be purchased only in small amounts, if at all. Less expensive foods that will contribute much the same thing to the diet have thus become of more than usual importance. Foods are costly because they are scarce or because they are so well liked that they are much in demand.

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Some relatively inexpensive foods are excellent sources of various nutrients that are needed to maintain health.

It is the aim of this little book to explain, simply and briefly, what nutritive needs should be met by the diet, what kinds and amounts of food will best supply these needs, and what foods are relatively more expensive or cheaper sources of each nutritive essential. Menus and recipes are given to show how less expensive foods of high nutritive value may be introduced in the diet in "tasty" dishes. Cookery has an important part to play in making nutritious foods attractive and thus in making acceptable such changes in food habits as may be dictated by necessity or desirable for promoting better health.

WHAT FOODS ARE MADE OF

THREE times each day we stoke our body engines with food. This adds up to about five years of an average man's life which are spent in eating. It is right that this time should be pleasantly spent, that meals should be attractive and well served, but eating should be a means to an end rather than merely a pastime. We should eat to live, not live to eat. No matter how delectable meals may be, our bodies are not "serviced" unless the foods eaten provide the kinds and amounts of material which are needed for their upkeep and repair.

Most foods are mixtures of many substances which have been studied by chemists and found to fall into five main types of material which must be furnished to the body in suitable amounts for health. Foremost among the substances found in foods are the fuel foodstuffs, so called because they can be burned in the body as fuel to provide energy. There are three classes of fuel foodstuffs—carbohydrates, fats, and proteins. The human body is an efficient machine in that it is able to burn three kinds of fuel, whereas the automobile engine can run only on gasoline; but we get most of our energy for work from carbohydrates and fats. The exact proportion of carbohydrates and fats in the food supply is not important as long as the body gets fuel food-

stuffs sufficient for its energy needs. Nor do we need to understand the chemistry of these substances to know that they are indispensable as body fuel, since none of the other substances taken in food can be used to yield energy for body needs. Most foods contain some of all three, but certain foods are especially rich in one kind of fuel foodstuff and poor in the others.

The important carbohydrates in foods are starch and sugars, which are found chiefly in vegetable foods such as grains, fruits, and vegetables. Starch is the same substance, wherever it is found, but there are several kinds of sugar. All "table sugar," whether it comes from sugar cane, sugar beets, or the maple tree, is chemically identical. Fruits, honey, and corn syrup contain different and simpler sugars. Except for the fact that large amounts of sugar are more likely to upset digestion than are starchy foods, it makes little difference to the body whether it gets carbohydrates in the form of sugars or starch, since all are converted to simple sugar before they are burned in the tissues. Ordinary granulated white sugar and cornstarch are examples of pure carbohydrates. Bread, breakfast cereals, crackers, cookies, cakes, pies, and cereal puddings are one-half to three-quarters starch; about one-fifth of potatoes and other starchy vegetables consists of starch; fresh fruits carry one-tenth to one-fifth of their weight in sugar and are the most wholesome kind of sweets.

Fats are found chiefly in foods of animal origin, though vegetable oils (from seeds, nuts, or olives) are 100 per cent fat. Fats are alike in that they have a greasy feel and are not soluble in water. Butter, margarines, lard, and other cooking fats are almost pure fat. Fatty meats, cream cheese, egg yolks, nuts, and chocolate also contain considerable fat. Olives and avocados (alligator pears) are the only fruits that contain fat in appreciable amounts. Many foods, including milk, carry fat in lesser amounts.

If you want to know what pure protein looks like, examine some gelatine or egg white; the former is dry protein, the latter is protein dissolved in water, which gives a thick, sticky solution. When egg white is heated, it "sets," by changing into a white, insoluble solid. It is characteristic of all proteins that they thus "coagulate" on heating. For this reason, as all good cooks know, meats, cheese dishes, and custards should not be cooked too long or at too high temperatures. All foods except pure carbohydrates and fats (sugar, corn starch, and clear fats) contain some protein, but most of our protein supply comes from meats (including fish and poultry), eggs, milk, cheese, and the legumes (peas and beans). Nuts and cereal products (bread, crackers, and breakfast cereals) are also good sources of proteins.

Mineral elements, which are very necessary to the body, are also found in most foods. It is common knowledge that animals will travel long distances to get salt, that the mineral elements calcium and

phosphorus are needed to build bones and teeth, and that iron is required for the blood. Foods contain mineral elements in relatively small amounts, but the body needs less of these substances than it does of the three fuel foodstuffs. Milk and cheese, yolks of eggs, glandular organs (liver and kidneys), leafy vegetables, dried fruits, legumes, and nuts are among our best food sources of mineral elements.

Vitamins are usually carried in foods in lesser amounts than mineral elements but are essential for the growth of children, for the health of adults, and even to sustain life. Natural foods almost always contain more vitamins than refined, preserved, processed, and canned foods; raw foods have a higher vitamin content than cooked foods. Vitamins are found most richly in dairy products, egg yolk, organ meats, whole grains (in the outer coats and germ), and in leafy, green, and yellow vegetables. Fruits, muscle meats, and many other foods carry certain vitamins.

Much of the bulk of foods may be due to the water or vegetable fiber that they contain. The leaves, stalks, and roots of plants that we use as food contain considerable amounts of an indigestible carbohydrate, cellulose, which makes up the vegetable fiber or "skeleton" of the plant; the skins and seeds of fruits, as well as the outer coats of grains, are composed chiefly of this substance. Since vegetable fiber is indigestible, it serves to give bulk to the food residues in the lower bowel and thus to prevent consti-

pation. The animal fiber of muscle meats is digestible. We cook most plant foods to soften the fiber, since the digestive tract may be irritated by harsh material.

The amount of water in foods varies from over 90 per cent in juicy fruits and vegetables to about 6 per cent in such dry foods as crackers, but most foods carry more than we realize. For instance, about three-quarters of the weight of raw, lean meat and one-third of the weight of bread are due to their water content. Milk, a fluid food, consists of 87 per cent water and 13 per cent solids (the solids are about equally divided between proteins, fat, and milk sugar). In addition to the water taken in solid foods, we need to take fluids to replenish the water content of the body, usually to the extent of one and one-half to two quarts daily (more in hot weather). Some water may be taken in milk, soup, or beverages, but the drinking of at least four to six glasses of water per day is advisable.

In brief, then, the body requires, and our foods provide, each of the following:


fuel, chiefly from	mineral elements
carbohydrates and fats	vitamins
proteins	water

It must be remembered, however, that many of the substances found in foods must first be digested, and all must be absorbed from the digestive tract, in order to be available for use by the body as a whole. Indigestible carbohydrates, such as are found in

vegetable fiber, are of no use except to give bulk to the stools. Other carbohydrates (except simple sugars), fats, and proteins are broken down by chemical processes in digestion into simple, soluble, readily absorbable substances. Water, mineral elements, and vitamins are absorbed unchanged. If food is hurried through the intestines, digestion and absorption may be incomplete; this sometimes happens when one is nervously upset or has eaten some food that is irritating to the intestine. Likewise, the presence in the intestine of any substance which combines with a food nutrient so as to make it insoluble will prevent its absorption.

A person who is well is not likely to have digestive difficulties, but for those who are sick or under nervous strain it is important that foods which upset the digestive tract be avoided. No matter how nutritious a food may be for most persons, those whose digestive tracts rebel against that particular food should avoid it. Such individuals must look about for other foods which provide the same nutritive substances. With so many foods to choose from, there is plenty of scope for personal preferences.

HOW MUCH ENERGY DO YOU NEED?

 ONE of the needs of the body is for energy to keep warm and to do its work. Like a clock, its internal activities keep “ticking on” night and day; the heartbeat and breathing never cease as long as we are alive. Even the most indolent do a good deal of unconscious work. It takes energy to sit upright, more energy to walk, some to eat, and some to drive an automobile. If one is muscularly tense, this uses up more energy. The man who goes in for sports or who earns his living by the sweat of his brow is a big user of energy.

The calorie is a “yardstick” for measuring the amount of energy needed by the body or the fuel value of foods. For the burning in body tissues of fuel foodstuffs which are provided in foods is what sets free energy in the body, either as heat or for performing work. The more carbohydrates, fat, and protein in a certain food, the higher will be its fuel value, or the more calories it will yield in the body. Fats yield over twice as many calories as the same weight of carbohydrates or protein. Hence fatty foods have an especially high energy value. People who live in cold climates or do much muscular work may need to eat fats, but those inclined to take on weight should use them with caution. Foods rich in carbohydrates, such as sugar, candy, bread, and

breakfast cereals, also furnish plenty of calories. Foods that consist mostly of water and vegetable fiber (e.g., lettuce, celery, and tomatoes) are of low energy value, since the body cannot burn these substances, nor can it burn the mineral matter in foods.

Everyone knows what happens when the diet supplies too little or too much energy. The child who has no appetite, the poor laborer who gets insufficient food, or the overweight dowager who goes on a diet of green vegetables and a couple of rye wafers—each loses weight. The body burns some of its own tissue material when the calorie value of the food is not enough to meet its energy needs. But if the dowager returns to her usual diet, which includes candy, whipped cream, and rich desserts, up goes her weight. The excess calorie intake, above body needs, is stored as fatty tissue in her already too fat body. When the body weight does not vary (either up or down), one may assume that the food taken supplies just about the amount of energy that is required to run the body.

People differ widely in their energy needs. Almost everyone has seen lean individuals who stay thin in spite of eating large amounts of food as well as fat persons who protest that they eat next to nothing. The former have a type of body that is geared for high energy consumption, while the latter have a low energy need because their bodies actually use less than one would expect. A small child requires less total calories than an adult, although per unit of

weight the energy need of children is high. A growing child who is gaining weight rapidly needs extra energy to store in new tissues. Besides energy for growth, children require considerable energy for muscular activity, as they are seldom still. An adolescent boy will often consume more calories in food than his father and really needs this extra body fuel.

Muscular activity is the most potent factor in raising the calorie requirement. A man whose work involves strenuous exercise or heavy lifting may need 4,500 calories; one who does considerable walking or light work, 3,000 calories; and one whose job is done sitting, about 2,500 calories. The exact amount will depend on his weight as well as his work—usually 15–20 calories for each pound of body weight will be enough, unless he does strenuous work.

A small and sedentary man may require no more energy than a woman, but women usually need less energy on account of their smaller weight and less active lives. About 2,100 calories should suffice for a woman who weighs 132 pounds and does not exercise much, but, if she does her own housework, works as a nurse or in a factory, she may need 2,500 calories, or more. Many older women who exert themselves little muscularly need considerably less than 2,100 calories and hence are inclined to take on weight unless they watch their calorie intake closely. Pregnant women and nursing mothers require an extra energy allowance to provide for the growth of

their children, in addition to the upkeep of their own bodies.

Mental work does not raise the calorie requirement to any appreciable extent unless one becomes muscularly tense. Someone has estimated that a maid, in the few minutes of muscular effort involved in dusting the professor's study, would use more energy than the professor would need for the mental work of a whole day.

Do we need to "count calories"? With growing children and physically active adults, the chief problem as to calories is to get them in plentiful amounts, and such persons do not need to worry about an oversupply. A healthy appetite usually regulates the amount of food consumed, and any excess calories are used either for growth or for muscular activity. Unless there is considerable overeating of fuel foods, the growing child or the laboring man exhibits no tendency to become fat.

With persons over forty who get less exercise than formerly, watching the weight rightly becomes an important habit. Increasing age and decreasing physical activity call for a lesser supply of fuel foods to meet body needs, and even a small amount of unneeded calories is readily deposited as body fat. Such people should count calories to the extent of consciously cutting down on their consumption of foods high in fuel value, such as bread and butter, all fatty foods, starchy vegetables, and sweets.

Under present-day living conditions, which call

for very little physical exertion, even the daily allowance of 2,500 calories for sedentary men and 2,100 calories for muscularly inactive women may be too much; a small man who does desk work and rides to and from work may require only 2,000–2,200 calories; an older woman whose chief exertions are bridge and knitting may need as little as 1,600–1,800 calories a day. If we should revise our living habits so as to ride less and walk more, our calorie needs would be nearer the “standard” allowances quoted above. Usually the sedentary adult can get the better of the tendency to increase in weight merely by self-control as to the size of the portions of high-calorie foods that he takes. If body weight stays constant, he has limited his calorie intake enough.

Only those who are decidedly underweight or overweight need to count calories to the extent of calculating the approximate calorie value of an average day’s food intake. Unless they see it down on paper, it is often difficult to convince such persons that they are eating too little or too much to meet their fuel needs. A malnourished child may be taking chiefly bulky foods of low fuel value, while the overweight individual may get many calories in small bulk if the foods chosen are of high fuel value and between-meal tidbits are counted.

The approximate calorie values of average servings of the common types of food are given in the table on pages 17-18. Except for a few staple foods, it

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is not necessary or advisable (for the purposes of this book) to give calorie values for special dishes and for individual cooked foods. Recipes, methods of cooking, size of portions, etc., vary widely. However, a general table, such as follows, will enable those who wish to do so to check on approximately how many calories their daily diet provides. Others will find it interesting to observe how widely foods differ in calorie content—how a relatively small amount of foods rich in fat or carbohydrate yields a large number of calories, while even a large serving of foods of high water or fiber content contributes little to the fuel value of the diet.

APPROXIMATE ENERGY VALUE OF FOODS IN AVERAGE SERVINGS OR COMMON MEASURES*

Food	Calories
<i>Fatty foods:</i>	
Butter, 1 av. square †	75
Butter, 1 tbsp.	110
Butter, $\frac{1}{2}$ cup	820
Margarine, 1 tbsp.	110
Vegetable oils, 1 tbsp.	130
Shortening (clear fat), 1 tbsp.	130
Shortening, $\frac{1}{2}$ cup	1,000
Cream, light, 1 tbsp.	30
Cream, light, $\frac{1}{2}$ cup	250
Cream, heavy, 1 tbsp.	50
Cream, heavy, whipped, $1\frac{3}{4}$ tbsp.	50
Cream, heavy, $\frac{1}{2}$ cup	400
Cheese, American, 1 tbsp., grated	35
Cheese, slice 2×1 in., $\frac{1}{2}$ -in. thick	80
Chocolate, bitter, 1 tbsp., grated	30
Chocolate, bitter, 1 oz. square	160
Chocolate, sweetened, 1 oz. square	145
Chocolate, sweetened, 1 bar (5¢)	240
Nuts, $\frac{1}{2}$ oz., 5-15 nuts (depending on kind)	100
Nuts, $\frac{1}{2}$ cup, chopped	350-550
Peanut butter, 1 tbsp.	100
Bacon, 3 strips, cooked	100
Salad dressing, mayonnaise, 1 tbsp.	100
Salad dressing, French (coml.), 1 tbsp.	65
Salad dressing, boiled, 1 tbsp.	25
Sauce, chocolate, 1 tbsp.	100
Sauce, hard, 1 tbsp.	75
Sauce, hollandaise, 1 tbsp.	50

Meats:

Lean, med. done, 1 serving	100-175
Med. fat, med. done, 1 serving	150-275
Fatty, med. done, 1 serving	250-475

* This abridged table, in which only staple foods are listed individually and other foods in general groups or classes, should suffice for an approximate check of the calorie value of the diet. A fairly complete list of the calorie value of individual foods would require many pages. Those who desire more detailed information as to energy values of special foods may find such tables in the author's *Dietetics Simplified* (2d ed.; Macmillan, 1940), pp. 670-717.

† All measures level; 3 tsp. equal 1 tbsp., approximately 16 tbsp. to a cup. Average serving of fruit or vegetable is $3\frac{1}{2}$ oz. (100 gm.). A serving of meat ranges from 2 oz. (small) to 4 oz. (large).

APPROXIMATE ENERGY VALUE OF FOODS IN AVERAGE SERVINGS OR COMMON MEASURES—*Continued*

Food	Calories
<i>Eggs:</i>	
1 medium-sized	80
<i>Milk:</i>	
Whole, 1 cup or glassful	165
Skim or buttermilk, 1 glass	85
<i>Starchy foods:</i>	
Bread, 1 slice (varying with kind and size)	55-80
Breakfast cereals, cooked, $\frac{2}{3}$ cup	105
Breakfast cereals, prepared, av., 1 cup	65
Breakfast cereals, 1 shredded-wheat biscuit	110
Macaroni, $\frac{3}{4}$ - $\frac{1}{2}$ cup, cooked	100
Rice, $\frac{3}{4}$ - $\frac{1}{2}$ cup, cooked	105
Potato, white, 1 medium-sized	100
Potato, sweet, 1 medium-sized	180
Flour (or cornstarch), 1 tbsp.	30
Flour, 1 cup, av., sifted	400
Tapioca (or sago), 1 tbsp., uncooked	50
Sauces, white, tomato, or cheese, 1 tbsp.	20-30
<i>Sugar and sweets:</i>	
Sugar, white, 1 tsp.	20
Sugar, white, 1 cube or domino	25- 30
Sugar, white, 1 tbsp.	60
Sugar, white, $\frac{1}{2}$ cup	450
Sugar, brown, 1 tbsp.	45
Sugar, brown, $\frac{1}{2}$ cup	345
Honey, strained, 1 tbsp.	65- 80
Honey, strained, $\frac{1}{2}$ cup	500-640
Corn syrup, $\frac{1}{2}$ cup	600
Molasses, $\frac{1}{2}$ cup	400
Jam, jelly, or syrup, 1 tbsp.	40- 60
Candy, 1 piece (depending on kind and size)	50-125
Desserts, not rich or sweet, av. serving	100-200
Desserts, rich or very sweet, av. serving	200-400
<i>Vegetables:</i>	
Starchy (peas, beans, or corn), $\frac{1}{2}$ cup, cooked	100-130
Nonstarchy, av. serving ($3\frac{1}{2}$ oz.)	15- 50 (av. 30)
<i>Fruits:</i>	
Dried, prunes or apricots, av. serving	85-135
Dried, 3-4 dates or 2 small figs	90-100
Dried, raisins, seeded, $\frac{1}{2}$ cup	180
Canned, in light syrup, av. serving	80
Fresh, av. serving ($3\frac{1}{2}$ oz.)	40-100 (av. 70)

PLACE OF STARCHY FOODS AND SWEETS IN THE DIET

BREAD is called the staff of life because for centuries it has formed so large a portion of the diet of so many peoples. Even in early Egyptian and biblical times, bread was the most important staple food. All bread was formerly made from coarsely milled whole grains, but, after the introduction of modern milling machinery, the outer portions of wheat were sifted out and white flour that consisted entirely of the inner, starchy part of the kernel became popular for bread-making. This so-called "patent" flour is a refined food which consists chiefly of starch, although about one-tenth of its weight is due to proteins. The outer layers and germ, which are removed in the milling process, contain a large part of the mineral elements and vitamins found in wheat. Wheat is the preferred cereal for bread-making in most countries, but rye, corn, oats, and barley are sometimes used, while rice takes the place of bread in the diet of most oriental peoples.

White sugar is also a comparatively modern food, made from the juices of sugar cane or sugar beets by refining processes. It is 100 per cent pure carbohydrate, hence it is useful to the body as fuel but serves

no other purpose (carries no other nutritive essentials). Molasses usually contains considerable amounts of minerals and sometimes carries traces of certain vitamins, substances that have been discarded in the refining of sugar. Honey, brown sugar, and maple sugar contain only small amounts of substances other than carbohydrate.

Suppose a man wished to get his whole day's energy supply (2,500 calories) from white bread or from sugar. He would have to eat 2 loaves of bread at a cost of 20 cents, or 1 pound and 6 ounces of granulated sugar that would cost about $9\frac{1}{2}$ cents. Sugar and bread would furnish body fuel at very low cost; from the viewpoint of energy, they are "good buys." Of the two, the bread would be preferable, since it is possible to eat larger amounts of starchy foods than of sugars without cloying the taste and upsetting digestion; also the bread would furnish some protein, as well as minerals and vitamins if made with yeast and milk. But man cannot live on either sugar or bread alone. Though both are cheap sources of energy, they are one-sided foods which are lacking in many of the substances required by the body.

Families that have little money to spend for food place great dependence upon foods from cereal grains (such as bread, crackers, macaroni, noodles, rice, and breakfast cereals), in order to get enough calories to sustain life. As much as 40 per cent of the

calories needed may be furnished by grain foods, but not more than 10 per cent should come from sugar, syrups, etc. If the diet is to be sufficiently well balanced to maintain health, the remaining half of the energy must be furnished by foods that contribute more of the essential proteins, minerals, and vitamins. When grain products occupy so large a place in the diet, it is a great help toward good nutrition if whole-grain products are used instead of highly milled cereals.

All of us get a large proportion of our energy from the starch and sugars in foods. In addition to cereal products and concentrated sweets, we eat potatoes, peas, beans, corn, and other starchy vegetables, while dried fruits have a high sugar content and fresh fruits contain lesser but appreciable amounts of sugar. Flour, cornstarch, and sugar are widely used in cooking. Even milk contains some sugar. Only fats and meats are practically carbohydrate free. There is little danger of eating too much carbohydrate, provided one avoids concentrated sweets and includes in the diet plenty of the protective foods (dairy products, eggs, vegetables, and fruits), which carry the precious minerals and vitamins.

One class of persons, the overweights, do need to watch their consumption of starchy foods and sweets more closely. You know that cattle and chickens are fattened for market on corn. A mule will refuse to overeat grain feeds, and human beings

should have at least as much sense as mules. Yet it is a fairly common sight to see persons who are already too fat stuffing themselves with candy, jam and bread, pancakes and syrup, as if they were being fattened for the livestock market. Remember these foods are full of calories, and those who put on excess weight readily must use them with caution, that is, in small portions only or for an occasional indulgence. In reducing diets the carbohydrate-rich foods are either ruled out or rigidly limited in amount.

Sugar is valued for its taste, and many persons have an excessive liking for sweet foods. Overweight persons with a "sweet tooth" may use saccharin in place of sugar for sweetening; this is a coal-tar product which is intensely sweet but has no fuel value in the body. When cane or beet sugar is scarce, honey, corn syrup, or molasses may be used in place of it in cooking. All three contain water, so that the liquid called for in the recipe should be reduced accordingly.

Corn syrup is one of the cheaper sugar substitutes; in muffins, plain cakes, and drop cookies it may be substituted measure for measure for sugar and the liquid in the recipe reduced one-third. It may also be substituted for half of the sugar called for in canning fruits or making jellies. Honey is more expensive but is especially good for sweetening raw fruits or use on cereals; it may be used in dough mixtures to replace all or half of the sugar (measure for meas-

ure), but other liquids must be reduced one-half to one-fourth, depending on the amount and consistency of the honey used. Dark molasses or sorghum syrup may be successfully used in gingerbread, steamed puddings and breads, baked beans, and cookies. Dried fruits should be cooked without added sugar; less sugar should be used on cereal or fresh fruits and in beverages.

SAMPLE MENUS FOR LOW-COST DIETS¹

BREAKFAST

1

Oatmeal with sliced banana
Toast
Coffee (milk for children)

2

Sliced oranges
Bread-crumb pancakes with
corn syrup*
Coffee (milk for children)

3

Graham mush with stewed
prunes
Toast
Coffee (milk for children)

LUNCH (or SUPPER)

Cream of potato soup*²
Peanut scrapple*
Dried-fruit Brown Betty*
Tea

Baked hominy and cheese*
Wilted lettuce with bacon*
Oatmeal muffins*
Canned peaches

All-in-one salad*
Drop biscuits*
Sliced bananas with milk

DINNER

Cabbage stuffed with chopped
beef*
Canned tomatoes
Baked potatoes
Gingerbread (sour milk)*
Applesauce
Milk

Dried green-pea soup*
Scalloped carrots and onions*
Cornbread
Steamed molasses pudding with
lemon sauce*
Tea

Sweet potato and ham casse-
role*
Beets, cooked with tops
Raisin bread pudding*
Tea

¹ Meals in vertical columns (1, 2 3) form a unit for one day. Milk, bread (preferably whole-wheat), margarine or butter, jam or jelly, and sugar may be taken according to calorie needs and funds available.

² Asterisk (*) indicates recipes given in back of book.

FACTS ABOUT FATS

FATS are valuable food, but they should not be used lavishly. They are of value in the diet to provide a concentrated form of fuel so that one need not eat too large a bulk of food to meet the body's energy demands. Fats in the food also cause the stomach to empty more slowly and therefore help to make one feel satisfied with a meal and not get hungry between meals. People who have a meager supply of fats may get enough calories from other foods yet feel hungry most of the time.

But, because they slow down digestion of other foods and are concentrated fuel, fats are best used in small quantities. The person who continually heaps butter and cream on other foods runs a better-than-even chance of becoming overweight, while indulgence in three or four fatty foods at the same meal is fairly sure to bring on indigestion. Finely divided fats, like those in milk and egg yolk, are easily digested; fatty meats, rich gravies, pastries, and fried foods are most likely to cause indigestion. When fats are heated to high temperatures, as in frying, they break down to form substances that are irritating to the digestive tract. Fried foods may also become soggy with absorbed fat. It is for these reasons that the eating of much fried food is discouraged.

The best way to use fats is to spread them on, or to

mix small amounts of them with, starchy foods—butter or peanut butter on bread, cheese on crackers or with macaroni, cream on breakfast cereals. We also use oils in dressings for salad greens. Cheese with pie, whipped cream on chocolate pudding, or mayonnaise with salmon salad give the digestive tract a difficult job to handle.

Butter fat is the most popular fatty food. We take it in diluted form in milk and cream and use butter itself in many ways in cooking and seasoning foods, as well as to spread on bread. Its flavor is generally considered superior to other fats, and it carries fat-soluble vitamins which are needed by growing children and which keep adults healthy. If you have a liberal food budget, there are valid reasons for buying butter in place of cheaper fats.

Margarines usually cost much less than butter and have exactly the same fuel value. They are made from animal or vegetable fats, or mixtures of both, by churning the fat with water or milk to make it as nearly like butter in consistency and taste as possible. A small amount of butter fat and the fat-soluble vitamins found in butter may be added, and, if this is done, the margarine will taste like and be a true substitute for butter. There is a vast difference in margarines, and it is best to shop for one with a pleasing taste and with vitamins added in the same amounts as in butter. When butter is unusually costly, or if the money to be spent for food is less than one could wish for, margarines are a good buy.

Economizing on fats will mean more money to spend for other needed foods.

Vegetable oils are also useful foods. In fact they have a slightly higher fuel value than butter or margarine, since they are 100 per cent fat, and about one-fifth of the latter foods consists of water and salt. Oils are used chiefly in salad dressings, but these fluid fats may be used for making cakes or muffins if desired. However, semisolid fats are usually preferred as shortening for dough mixtures. Oils can be converted to a semisolid condition by a chemical process called "hydrogenation," and in this form they are sold as cooking fats under trade-names (Crisco, Spry, etc.). Olive oil has been the preferred oil for salad dressings, but it is so expensive that corn oil, cottonseed oil, and peanut or soybean oil are coming into wider use for this purpose. These oils have an identical calorie value, but none of them contains any of the vitamins that are found in animal fats.

As shortenings for dough mixtures or for use in frying, a variety of fats may be used. Butter is not so good for frying as other fats, since it decomposes at the temperatures used in this process and is likely to give protein foods, such as eggs and meat, a leathery texture. Meat drippings, bacon fat, lard (pork fat), oils, and hardened vegetable fats may be successfully used for frying fats or as shortenings, and it is thrifty to use at least some of these cheaper fats in cookery. When substituting one fat for another in

recipes, remember that butter and margarines contain water and that hardened vegetable fats are bulkier than 100 per cent fats such as lard, meat drippings, or oils. If you substitute any 100 per cent fat for butter, use one tablespoonful less for each half-cup of shortening called for in the recipe; margarine or hardened vegetable fats may be used measure for measure in place of butter.

Fats should never be wasted. Not only are they highly prized foods which are scarce enough to be expensive, but they are much in demand for use in soap-making and other industries. When commercial firms consider fats as one of the most valuable of by-products, the housewife should not be guilty of putting them in the garbage pail. Scraps of butter left from the table should be saved for cooking purposes. Take home the fat trimmings from meats instead of letting the butcher throw these away (you pay for them anyway); save the fat that runs out of frying bacon or from roasting or broiling meats; skim off the layer of clear fat that hardens on top of soups when cooled. Fats from all these sources may be used for pan frying, or they can be "clarified" and used as shortening. Bacon fat is often well liked for seasoning vegetables.

Both for economy and in the interest of a balanced diet, fats should not be too liberally used. Fats, like sugar, are one-sided foods. They provide nothing but energy, except in the case of such fats as butter, which carry vitamins. Proteins, minerals, and most

of our vitamins must be bought in other foods. If by cutting down on the quantity of fats used or buying cheaper kinds of fat one is enabled to spend more for milk, meat, eggs, fruits, and vegetables (foods that provide valuable nutrients other than energy), the result will be a "better diet," in the sense that it is likely to promote better health.

On the other hand, the cheaper fats offer an "energy bargain" and hence are useful in low-cost diets. In a cent's worth of lard one gets nearly four hundred calories, as contrasted with about one-third as many calories purchased for one cent in bread or potatoes and far less than this energy return for a cent spent on more expensive fats, eggs, or meat. No man can live by energy alone, but the very poor have to "stretch pennies" in buying energy in order to have anything left to buy other nutritive essentials.

One group of people should use fats sparingly, whatever their income may be, namely, those who put on excess weight too readily. Most of us know at least one person who, tantalizingly, can heap butter on bread and potatoes, cream on cereal or deserts, and mayonnaise on salads without getting fat. But such people are exceptions to the rule. Most of us, if we try such tactics, find weight creeping up on us, while really stout people can hardly look at a pat of butter without taking on weight. For fats are concentrated energy foods, that is, a little of them carries many calories. Such tidbits as three squares of

butter, a one-ounce piece of cheese, two Brazil nuts, and a five-cent chocolate bar together furnish nearly seven hundred calories. For many persons this would be about one-third of the amount that the entire day's meals should provide. One often sees stout people who eat these "extras," either between meals or as "garnishes" on other foods, in addition to three square meals a day!

In reducing diets it will readily be recognized that there can be little indulgence in fatty foods. In fact they have to be cut out of the diet almost completely if the calorie intake is kept sufficiently low to give the desired weight losses. Butter should be limited to not more than three squares per day; whole milk or cottage cheese may be used; in more strenuous reducing diets, skim milk or buttermilk are useful. Sweets and starchy foods must also be taken in only small amounts. Hence reducing diets are composed chiefly of such low-calorie foods as fresh fruits and green vegetables, which give needed bulk, minerals, and vitamins; milk, some eggs and lean meats, gelatine desserts, fruit whips, and ices are usually allowed. How rigidly foods of higher calorie content must be limited depends upon the calorie level required to cause loss of weight. A reducing diet should be limited in fuel foods only and should provide plenty of all the other nutritive essentials.

SAMPLE MENUS FOR REDUCING DIETS¹

BREAKFAST

1

Orange juice
Whole-wheat toast, 1 slice
Jam, 1 tablespoon
Coffee (no sugar or cream)

2

1 egg (boiled or poached)
Melba toast, 2 slices
Coffee

3

Fresh peach (or other fruit in season), sliced
Cornflakes with milk
Coffee

LUNCH (or SUPPER)

Banquet salad with mineral-oil mayonnaise²
Cornmeal crisps (salad wafers)
Canned pears
Skim milk or buttermilk, 1 glass

Tomato juice
Celery root and string bean salad*
Rykrisp with cottage cheese
Coffee jelly

Omelet, 1 egg
Smothered zucchini*
Bran muffins
Skim milk, 1 glass
 $\frac{1}{2}$ cantaloupe

DINNER

Broiled fish (nonfatty)
Spinach
Tomato and cucumber salad, French dressing, Rykrisp
Pineapple sherbet
Oatmeal macaroons* (2)
Demitasse

Beef bouillon
1 lamb chop
Green peas, small serving
Fresh fruit salad with French or mineral-oil dressing*
One-egg cupcake (1, not iced)*

French onion soup* (with little grated cheese but no toast)
Small baked potato
Broccoli
Grapefruit green salad*
Rykrisp
Tea

¹ Meals in vertical columns (1, 2, 3) form a unit for one day. Daily allowance of not more than 2 tablespoons of butter and 2 tablespoons of sugar may be used in any way that is preferred.

² Asterisk (*) indicates recipes given in back of book.

SAMPLE MENUS FOR UNDERWEIGHT PERSONS¹

BREAKFAST

1

Baked apple
Malt breakfast cereal with
cream
Griddle cakes* and syrup²
Coffee

2

Yellow cornmeal mush with
stewed raisins and thin cream
Graham muffins;* jam
Coffee or milk

3

Shredded-wheat biscuit, with
sliced bananas and thin
cream
Scrambled eggs with bacon
Toast
Coffee

LUNCH (or SUPPER)

Minute rarebit on toast*
Asparagus, buttered
Peanut butter biscuits*
Stuffed prune and orange
salad*
Milk

Casserole of dried lima beans*
Scalloped cauliflower and to-
matos*
Mixed greens with Roquefort
cheese dressing*
Milk

Black-bean soup*
Spaghetti Neapolitan style*
Crisp cabbage*
Fruit Bavarian cream*
Drop cookies*
Tea

DINNER

Cream of carrot soup*
American goulash*
Apple sweet potatoes*
Canned corn
Apricot and banana salad*
Graham date bread*
Tea

Casserole veal stew (with pota-
toes in it)*
Broccoli with cheese or peanut
butter sauce*
Waldorf salad*
Honey raisin crumb pie*
Milk

¹ Meals in vertical columns (1, 2, 3) form a unit for one day.

² Asterisk (*) indicates recipes given in back of book.

FOODS FROM WHICH WE GET PROTEIN

YES, you've guessed it: proteins are also valuable substances in our food. We must have them, because much of our body tissues consists of proteins, and these tissues must be constantly repaired and rebuilt. Proteins, preformed in foods, are the only nitrogen-containing substances from which body proteins can be built. No matter how much carbohydrate and fat the food provided for energy purposes, one would starve to death without proteins in the diet.

It is not very difficult to get enough protein for body needs, because almost all foods contain some, and many of our best-liked foods contain considerable amounts of it. Milk, meats, and eggs furnish much of our protein supply, but grain products, legumes, and nuts also contribute protein for body use. The former group of foods furnish animal proteins; the latter, vegetable proteins. Animal proteins are somewhat superior for building animal tissues, because they contain just the right "building stones" for body tissues in the right proportions; hence we say they are "better-quality" proteins for body-building. Vegetable proteins are probably best for plants. Our bodies can use them for part, but not all, of their protein supply. At least half of

our protein supply should be from foods of animal origin, which include milk and eggs. In fact, milk contains proteins that are very "efficient" for tissue-building, since it is nature's food for young, growing animals.

Our calorie needs vary widely according to size, age, and degree of muscular activity. Our protein needs also vary somewhat, but not over so wide a range, since muscular work, which calls for much extra energy, does not require extra protein. Most adults need about the same quantity of protein—a total amount of 2–2.6 ounces of protein daily suffices for body needs, the smaller quantities for people who weigh less, and vice versa. It does not matter if one gets more than this amount, because the body will retain what it actually needs for tissue repair and burn up the rest.

Adults are not building new tissues, but growing children are, and for this they need extra protein. Since they weigh less than adults, young children need less total protein, but they require from two to four times as much per pound of body weight, depending upon how rapidly the child is growing. However, if a child gets a quart of milk per day, this will supply enough protein of high quality for growth, so that there will be no need to fear that growth will be limited by lack of protein. Similarly a quart of milk daily will safeguard the protein intake of pregnant women and nursing mothers against possible shortage. Such women, of course,

need extra protein to nourish and provide for growth of the child through the mother's body. This extra protein need of mothers varies from next to nothing in early pregnancy to a maximum of about 1.7 ounces per day for women who are nursing a rapidly growing baby. The daily quart of milk will furnish all or most of the protein needed by the child, but the rest of the mother's food should supply enough protein for her own body needs.

The average adult will get sufficient protein if his diet includes every day the following foods: 1 pint of milk, 1 egg, and an average serving of meat. This group of foods can be depended upon to furnish about two-thirds of the daily allowance of protein, while bread, cereals, and other vegetable foods will make up the balance.

Our cheapest sources of protein are cereal products (any food made from wheat, oats; corn, rye, rice, or barley), potatoes, and dried beans or peas. These foods have a prominent place in low-cost diets, when it is essential to get as much energy and protein as possible for the money spent. But some animal protein must be provided in the diet for the sake of health. Milk will furnish animal protein at least expense; this is one of the reasons why it should be supplied liberally, even when the food budget is small. Evaporated or dried milks, which may be used in cooking, are usually cheaper than fresh milk. Two and one-half ounces of cheese are equivalent in nutritive value to a pint of fresh milk.

Cheese is relatively inexpensive and is useful to add flavor to bland cereal foods like bread, macaroni, hominy, and rice. Less costly cuts of meat, such as stews, also deserve a place in low-cost diets, both for their flavor and for their protein value. Meat may be made to "stretch" as far as possible by combining it with rice, cereal foods, or potatoes.

Eggs, fresh peas or beans, nuts, and medium-priced meats provide protein at a medium level of expense; steaks, chops, prime roasts, and poultry are our most expensive protein-rich foods. Fish and shellfish are good sources of protein; occasionally they can be procured at low cost (in fishing localities or at certain seasons, in dried or canned form), but they are sometimes costly (especially shellfish) or unobtainable.

Flesh foods are so well liked that many families spend too large a proportion of their food money on meats, which are an expensive source of protein and do not carry as much of certain minerals and vitamins as some cheaper protein foods. Vegetarians get along well without any meat, but it should be remembered that most of them get animal protein from milk, cheese, and eggs. The latter foods provide numerous mineral elements and vitamins along with excellent-quality proteins. A good rule is to spend as much for milk (and cheese, if used) as for meats, fish, and poultry.

When eggs are costly, they may have to be reserved mainly for cooking purposes and to be used

less lavishly than one would wish. Two or three eggs make the cake, muffins, or pudding sauce taste better, but one egg will often make a fairly good product. Gingerbread, steamed puddings, and sauces can be made without eggs. However, from a nutritional viewpoint, the use of eggs and milk in cookery is a practice to be encouraged. Persons who do not like to take these valuable foods "straight" will frequently eat them combined with other foods in cooked products, such as cream soups, custards, puddings, sauces, or dough mixtures.

Nuts and legumes deserve a further word in regard to their usefulness as substitutes for meat. Beans, cowpeas, lentils, and most nuts do not supply as adequate or efficient proteins as meat but can be depended upon for part of the daily protein quota. Peas, soybeans, and peanuts furnish the best-quality proteins at much lower cost than meat. They could well have a more prominent place in our menus, especially with the present high cost of meats and eggs. All the legumes and nuts are excellent sources of minerals and vitamins, in addition to proteins and energy. Many attractive dishes can be made from them, as witness the nut loaf and legume "cutlets" served in vegetarian restaurants.

So get your protein supply from different kinds of food, as your tastes incline or your pocketbook dictates, but get from various sources enough to prevent protein lack.

PORTION OF DAILY QUOTA OF PROTEIN
FOR ADULT FURNISHED BY
COMMON FOODS

	Per Cent
Meat, serving of 2-4 oz.....	25-50
Milk, 1 pint.....	25
Bread, 4 slices.....	} each will provide.....
Cheese, American, 1 oz., av. serving..	
Soybeans, $\frac{1}{2}$ cup, cooked.....	
Peanut butter, 2 tbsp. (or 30 peanuts)	
Peas or beans, $\frac{1}{2}$ cup, cooked	} each will provide.....
Nuts, 1 oz. (12-30 nuts, depending on kind).....	
Egg, 1.....	
Cereal, $\frac{2}{3}$ cup, cooked.....	} each.....
Vegetables (other than potatoes or legumes), 2 servings.....	
Potato, 1 medium-sized.....	3
Fruit, 2 servings.....	2.5

PATTERN FOR AN ADEQUATE DIET

FEW persons, in selecting their own meals or planning food for a family, want to be bothered with figuring calories or estimating protein. Yet, if the choice of food is entirely haphazard, it may easily happen that too much of some nutritive essentials are provided and too little of others. People are likely to overeat as to calories and protein and to get too scanty a supply of minerals and vitamins.

An easy way to make certain of getting enough of everything that the body needs is to follow a dietary pattern in planning meals. Such a pattern, if followed daily, will insure one's getting enough protective foods (i.e., those that are important for minerals and vitamins) yet will allow plenty of leeway for variety and preference. It is not intended to be followed slavishly but to serve as a guide or model, and the indispensable foods may be used in many different ways.

The Committee on Foods and Nutrition, of the National Research Council in Washington, recently suggested the following dietary pattern:

Milk—1 pint (or more) daily for adults; 1 quart (or more) daily for children

Eggs—3-5 a week; 1 daily preferred

Meat, cheese, fish, or legumes—1 or more servings daily

40 GOOD NUTRITION FOR EVERYBODY

Cereal or bread—most of it whole-grain or “enriched”

Butter—2 or more tablespoons daily

Vegetables—2 or more servings daily besides potato (one of which should often be raw, green, or yellow)

Fruits—2 or more servings daily (one of which should be citrus fruit or tomato)

Other foods to satisfy appetite and complete growth and activity needs

This pattern sets a fairly high standard of nutrition but one that is reasonable enough to be met even by families of very moderate incomes. Meat, which is usually the most costly item in the food budget, is called for only once a day, and less frequently if cheese or legumes are used. Inexpensive cuts of meat and fresh or dried fish two to four times a week, supplemented by cheese and fresh or dried legumes, would do for the low-cost diet. However, the pattern is elastic enough to allow for more than one serving daily of protein-rich foods, if desired, and on liberal budgets the more expensive meats will be prized for flavor and variety. Most of us use meats in larger quantity than the minimum that is called for.

Eggs are such a valuable food that three to five per person weekly are called for even in low-cost diets; the minimum standard of one every other day (a dozen per week for a family of four) would permit of serving them once or twice a week, with the rest reserved for cookery purposes; the higher standard of one egg for each person daily is suggested by the committee as desirable.

Milk in amounts of one pint daily for adults and one quart daily for children is indispensable for the best nutrition. Much of it may be used in soups, sauces, puddings, and on cereal, if preferred. Sometimes cooked milk agrees with digestion better than raw, and persons with an allergy for raw milk may tolerate it after it has been heated. Skim milk, buttermilk, and dried and evaporated milk are cheaper forms to use in low-cost diets, and, when used in dough mixtures and other foods, they add much to the nutritive value of the diet. Evaporated milk (undiluted) whips to make a valuable substitute for whipped cream.

Some butter is greatly to be desired. The minimum asked for in our pattern amounts to about seven ounces per person weekly, some of which could be used in cooking if preferred. Many families of moderate incomes reserve butter for table use and for seasoning vegetables but use less expensive fats for cookery. Others spend more for fats, using butter and salad oils liberally. If margarine is used in place of butter, one with added vitamins should be selected, while a plentiful supply of milk, cheese, and yellow and green vegetables will further safeguard such diets.

The use of whole-grain bread and cereals is recommended because of their higher content of minerals and vitamins. For those who cannot take whole-grain foods, our pattern suggests that so-called "enriched" bread or cereals, those which

have minerals and vitamins added to a highly milled product, should be used if best nutrition is to be secured.

Two or more servings each of fruit and of vegetables other than potato are called for to furnish extra fiber, minerals, and vitamins. Dried fruits and root or leafy vegetables are usually the least expensive. A few persons (with sensitive digestive tracts) need to have fruits cooked and vegetables sieved. The specifications as to certain kinds of fruit and vegetables which should be used frequently will be explained later on, when we consider which of these foods are richest in minerals and vitamins.

Our pattern does not specify the total amount of fats, sugar, breakfast cereals, bread, and starchy vegetables which should be taken daily, nor does it say anything as to desserts. This is because such foods are our chief sources of energy, and the energy needs of persons vary widely. Those whose energy need is high will eat liberally of such foods; those who do little muscular work or who take on weight readily will do better to eat sparingly of these foods. The kinds and amounts of food which are listed as indispensable may be relied upon to furnish enough protein, minerals, and vitamins. If these foods are worked into the menus each day, the high-energy foods may safely be varied in amount according to the need for calories.

Is such a dietary standard practical? Many low-income families cannot afford to buy this amount of

milk and eggs, fruits, and vegetables. The best way to meet this problem is to raise them at home. More farms and little homes with vegetable gardens and fruit trees, more small-town families that keep chickens and a cow, would help immensely. So would home-canning of fruits and vegetables in seasons when they are plentiful and cheap. Producing some of your own food means more money left with which to buy other foods. And food money is often unwisely spent, even by the well-to-do or rich, on candy, cakes, and costly meats that would better go for protective foods, those which safeguard the diet against shortage of minerals and vitamins.

One of the best reasons for having a dietary pattern is that it sets a goal. Even though not everyone can quite come up to the standard of nutrition called for, the more of us who make an honest effort to do so, the greater will be the improvement in individual and national health.

MENUS BUILT ON DIETARY PATTERN¹

BREAKFAST

1

Orange juice
Oatmeal with top milk
Toast, whole-wheat
Coffee (milk for children)

Gelatine meat loaf*²
Dried fruit and raw cabbage
salad*
Whole-wheat bread
Milk

44

2

Stewed prunes
Puffed wheat with top milk
Omelet
Toast
Coffee (milk for children)

LUNCH (or SUPPER)

Cheese and dandelion roll with
tomato sauce*
Hashed brown potatoes
Whole-wheat bread
Gingerbread with whipped
cream*
Tea (milk for children)

3

Grapefruit juice
Pettijohn's cooked cereal with
top milk
Muffins
Strawberry jam
Coffee (milk for children)

Corn chowder (made with
milk)*
Chef's salad bowl*
Oatmeal cheese sticks*
Honey rice pudding*
Tea (milk for children)

DINNER

Scotch broth
Chili con carne with soybeans*
Glazed carrots*
Whole-wheat bread
Apricot float tapioca cream*
Tea

Baked fillet of haddock with
spinach stuffing*
Baked potatoes
Beet and egg salad
Whole-wheat bread
Vanilla ice cream with choco-
late sauce
Spice cake*

¹ Meals in vertical columns (1, 2, 3) form a unit for one day. Butter for table use at all meals.

MINERAL ELEMENTS—WHY WE NEED THEM

IT IS rather amazing how many mineral elements are found in the human body, some in considerable amounts and some only in traces. In the body of a 150-pound man there are about $5\frac{1}{4}$ pounds of mineral matter. There is more than twice as much calcium and phosphorus as all the rest of the mineral elements put together, and the bulk of these two elements is concentrated in the bones. Most of the remainder of the mineral elements consists of sodium, potassium, magnesium, sulfur, and chlorine. The iron in the body, of vital importance to the blood and tissues, weighs less than does one cent; iodine, another vital element, weighs less than a grain of wheat. Minute amounts of copper are essential, and traces of several other elements probably also need to be supplied in the food.

Many stories are told of primitive tribes who value certain foods so highly that they will go to great trouble to get them. They sometimes make long journeys to obtain special plant foods, dry them, and store them for future use; or they may scale hazardous cliffs to secure birds' eggs. When an animal is killed, all parts of the carcass are eaten, and the organs may be reserved for the chieftain and his warriors or for pregnant women. Most of these

highly prized foods are rich in minerals, and sometimes they contain vitally needed mineral elements not found in the ordinary foods of the people.

Civilized man does not seem to show as much intelligence in valuing the mineral content of foods. He removes, by milling, the mineral-rich outer part of grains, feeds this to cattle, and eats only the starchy inner portion of the grain. He prefers the lean muscle meats, which are lowest in mineral content, and discards the organs to be used as fertilizer. Sugar and clear fats, both of which contain no minerals, bulk large in his diet. Although milk and eggs (mineral-rich foods) are to be had in abundance, frequently he does not care to use much of them, and he may class salad greens as "rabbit food."

In spite of these practices, mineral elements are so widely distributed in foods that the American diet usually supplies enough of all but three or four of the needed minerals. The ones that we are most likely to get in insufficient quantities are calcium and iron, both of which are vital to our well-being. Milk is our best food for calcium. An infant that is fed too much sugar and highly milled cereals and gets too little milk will grow fat but build bones and teeth of poor quality. The soft bones, seen in young children with rickets, may be due to a diet that is too poor in calcium. Even adults, when their diet supplies just enough calcium to "get by," may have lower vitality than if they had an abundance of this mineral.

When your food furnishes too little iron to replenish the iron from the blood that is lost day by

day, you may be pale and tired, with little appetite, and sometimes be conscious of shortness of breath or rapid heartbeat—a condition called chronic or secondary anemia. These symptoms result from the fact that the blood is not able to carry its normal quota of oxygen to the tissues, since there is insufficient iron available to build as many new red blood cells as usual. Iron, and a little copper, are necessary to build the oxygen-carrying pigment in red blood cells.

In case you live in one of the regions where the water and soil are poor in iodine (especially the Great Lakes Basin and Pacific Northwest), you may suffer from iodine shortage. Foods grown in such regions are lacking in this element, which is needed in small amounts by the thyroid gland to make its iodine-containing secretion. When iodine is too scantily provided, the thyroid gland is likely to become enlarged, a condition which is known as simple goiter and to which adolescent girls and pregnant women are especially subject. In regions where foods are low in iodine content, the offspring, both of lower animals and of humans, may be stillborn unless the mothers are given extra iodine in some form during pregnancy. Seafoods are rich in iodine. If seafoods, canned vegetables of higher iodine content from other sections, or iodized salt are used to reinforce the diet with this element, simple goiter can be prevented. A tiny quantity of iodine may mean the difference between sickness and health.

Phosphorus shortage can also bring disastrous re-

sults, as this element is required in considerable amounts (along with calcium) for the building of strong bones and teeth and also for the welfare of other tissues. But most diets supply enough phosphorus, since it is plentifully provided in meats and all cereal products, as well as in milk, eggs, legumes, and other foods. As phosphorus and sulfur are often found in proteins, they are not likely to be lacking if the protein needs are met. Of course we get a superabundance of sodium and chlorine in the salt (sodium chloride) that we add to our foods.

So calcium and iron, which are more unevenly and scantily found in foods, are the mineral elements that we need particularly to look out for. Sometimes, even though the chemist says there is plenty of calcium or iron in a certain food, when this food is fed we find that the body is unable to assimilate and use the mineral element in the form in which it is provided. Thus the calcium in carrots and leafy vegetables is not nearly so well assimilated as is that in milk. Likewise leafy vegetables and meats contain considerable iron, but only about half of this iron is in a form which the body can use (i.e., is available for building the iron-containing red pigment of blood). None of the calcium and probably only about half of the iron in spinach are available for use by the body; nevertheless spinach does provide some iron, as well as important vitamins. Hence, we should realize that it is necessary to have more than barely enough calcium and

iron in the diet. About one and one-half times the amount actually required by the body will allow a safe surplus so as to make sure that a sufficient amount is available for body needs.

The quantity of mineral elements required varies very little with size and is not influenced by the amount of muscular work done. Hence we make a standard allowance that is the same for all men and women, with the exception of prospective mothers and those who are nursing babies.

Pregnant women and nursing mothers need extra amounts of mineral elements, as well as extra energy and protein, to provide building materials for new tissues in the child. In the early months of pregnancy this need is not so great, but in late pregnancy and while nursing a child the need for calcium is at least doubled, and about one-fourth more iron is required. If this greatly increased need for calcium is not met by a calcium-rich diet, the woman's own body may be robbed of calcium. Because in earlier times this extra need for calcium in pregnancy and lactation was not appreciated, an old saying was current that "every child costs a tooth."

Growing children also need mineral elements for building new tissues, especially calcium and phosphorus for bones and teeth. Growth may be stunted, fragile or soft bones may result, and teeth may be malformed or decay easily if minerals are not provided in plentiful amounts during childhood. The character of the bones and teeth is largely deter-

mined by whether an abundant supply of calcium and phosphorus was available before birth (through the mother) and in the first few years of life. Yet, whenever growth is rapid, a child needs more mineral elements than an adult. Adolescent boys and girls should have about one and one-half times more calcium and one and one-quarter times more iron than their fathers and mothers.

It is not easy to get plenty of these mineral elements in the ordinary mixed diet unless one has cultivated habits of eating certain mineral-rich foods regularly. Dietary questionnaires have shown that many persons are getting less mineral elements in their food (especially calcium and iron) than is desirable for building and maintaining healthy bodies.

FOODS WE DEPEND ON FOR MINERALS

NUTRITIONISTS tell us that an adult's diet should provide daily at least 800 milligrams of calcium and 12 milligrams¹ of iron, amounts equivalent to about 0.027 and 0.0004 of an ounce, respectively. These sound like such very small quantities that it would seem as if it would be no trouble at all to get enough minerals. But did you ever try burning up a food to see how much, or rather how little, ash or mineral matter is left behind? If you tried this with sugar or a clear fat, you would find that it disappears completely on burning, with not even a trace of mineral matter left. Meat or white bread would yield a small amount of ash, dried beans or a leafy vegetable considerably more, but still a very small quantity as compared to the original bulk of the food. In other words, some foods are entirely without mineral content, others carry only traces of mineral matter, while even those relatively rich in mineral elements still contain them only in small amounts. Hence, even though we need only a small quantity of minerals, we have to eat a considerable amount of food and the right kind of food to get them.

¹ A gram is about one-thirtieth of an ounce. The milligram is one one-thousandth part of a gram, or one thirty-thousandths of an ounce.



52 GOOD NUTRITION FOR EVERYBODY

In general, diets that consist chiefly of sugar and fats, meats, bread and cereal made from highly milled grains, will provide insufficient amounts of mineral elements for body needs. People who eat liberally of dairy products, eggs, fruits, and vegetables and who use whole-grain cereals are reasonably sure of getting their full quota of minerals. The latter classes of food are the kinds that make the best contribution of minerals to the diet, but it is necessary to allow several servings of each type of food if minerals are plentifully supplied.

Probably the following is a safe rule for getting one's daily quota of mineral elements: include in your meals each day the following:

- at least 1 pint of milk (or $2\frac{1}{2}$ oz. cheese)
- 3 liberal servings of fruit
- 3 liberal servings of vegetables

To many persons a serving of vegetable means only a mere "dab," or, if more is on the plate, it is left untouched. A liberal serving means at least half-a-cup of cooked vegetable, berries, or stewed fruit and one large or two medium-sized fresh fruits. Leafy vegetables may be taken raw in salads, but again liberal portions are indicated, for one or two lettuce leaves or stalks of celery will contribute little in minerals.

Fruits and vegetables vary considerably in mineral content. Dried fruits, leafy or other green vegetables, and legumes are much richer in minerals than watery fruits and vegetables, such as fresh

peaches, oranges, tomatoes, and summer squash. The green, outer leaves of lettuce or cabbage heads may have two or three times as much calcium and iron as the blanched, inner leaves. Broccoli, by chance, has an unusually good supply of calcium and iron, but how many persons would know this when making their menu? If you happened to choose vegetables and fruits relatively high in minerals, two moderate-sized servings of each would be enough; but to allow for variability in their mineral content and for wider range of choice, three liberal servings of each is a safer rule. If you use freely some of the other mineral-bearing foods discussed below, you need not rely to so great an extent on vegetables and fruits for minerals.

Milk is our mainstay for calcium, and it is very difficult to plan a calcium-adequate diet for one who does not take milk in any form. Two and one-half ounces of cheese will furnish as much calcium as a pint of milk. You will notice from the table on page 54 that the pint of milk, called for in our dietary pattern for an adult, contributes 70 per cent of a day's quota of calcium. It will take a great many servings of the other foods listed to make up this amount of calcium. For those who won't drink milk, it is not difficult to get at least a glassful, if not a whole pint, into cooked foods; or one glass of milk and an ounce of cheese would make up about the right proportion of dairy products for an adult. If expense is the main item, $6\frac{1}{2}$ tablespoonfuls of dried

PORTION OF DAILY QUOTA OF CALCIUM
FOR ADULT FURNISHED BY
COMMON FOODS

	Per Cent
Milk, 1 pint	70
Cheese, American cheddar, 1 oz., av. serving	31
Leafy vegetables, $\frac{1}{2}$ cup, cooked	15
Whole-wheat bread, 4 slices	} each 8
Soybeans, $\frac{1}{2}$ cup, cooked	
Green vegetables (not leafy), av. serving	
Cottage cheese, 2 oz., 2 tbsp. (rounded)	} each 5-6
Nuts (except peanuts), 1 oz. (12-30 depending on kind)	
Beans (other than soy), $\frac{1}{2}$ cup, cooked	
Dried fruit, av. serving	
Molasses, dark, 1 tbsp.	
Egg, 1 whole	} each 4-5
White bread, 4 slices	
Root vegetable (except potatoes), av. serving	
Peanut butter, 2 tbsp. (or 30 peanuts)	} each 2-3
Peas, $\frac{1}{2}$ cup, cooked	
Sweet potato, 1 large	
Whole-grain cereal, $\frac{2}{3}$ - $\frac{3}{4}$ cup, cooked	
Meat, large serving, cooked	} each 1.5-2
Fruit, fresh, av. serving	
White potato, 1 med.	
Fruit vegetable (tomato, eggplant, summer squash, av. serving)	} each 0.7-1.2
Meat, med. serving, cooked	
Cereal, highly milled, av. serving	

FOODS WE DEPEND ON FOR MINERALS 55

PORTION OF DAILY QUOTA OF IRON FOR ADULT FURNISHED BY COMMON FOODS

	Per Cent
Liver, 2-3½-oz. serving	60-100
Meat (muscle), 2-4-oz. serving, lean, med. done . . .	22-43
Meat (muscle), 2-4-oz. serving, med. fat, med. done	19-39
Beans (not soy), ½ cup, cooked	27
Leafy vegetables, ½ cup, cooked, av. } each about . . .	
Soybeans, ½ cup, cooked } each about	20
Dried fruit, av. serving	
Whole-wheat bread, 4 slices } each about	16
Peas, ½ cup, cooked	
Whole-grain cereal, ¾-¾ cup, cooked } each about . . .	12
Egg, 1 whole	
Milk, 1 pint	10
Nuts, 1 oz. (12-30 nuts depending on kind)	
Molasses, dark, 1 tbsp.	
White potato	
White bread, 4 slices } each	6.5
Sweet potato, 1 large } each	
Peanut butter, 2 tbsp. (or 30 peanuts) } each	5
Cheese, 2 oz., 2 av. servings	
Root vegetable (except potato), av. serving	
Fruit, fresh, av. serving . . . } each	3
Fruit vegetable, av. serving }	

skim milk is equivalent in calcium value to a pint of fresh whole milk and costs only a few cents. There are tricks of slipping milk into the menu—in cream soups or sauces, on cereal or desserts, boiled down in cereals or cereal puddings, mixed into doughs. Thin cream contains only slightly less calcium than milk, and ice cream is also a good “carrier” of this mineral.

Egg yolk, green or leafy vegetables, whole-grain breads, dried fruits, and legumes and nuts are our next most important foods for calcium. An average serving of any one of these foods will contribute between 5 and 15 per cent of the day's quota (highest for leafy vegetables, with the exception of spinach, in which the calcium is in an unabsorbable form). A serving of whole-grain cereal, of other vegetables, or fresh fruits will furnish only from $1\frac{1}{2}$ to 4 per cent of the daily calcium quota. One realizes why it is important to serve green or leafy vegetables frequently, dried fruits and legumes occasionally, and to use some eggs and whole-grain products. Meats contribute plenty of phosphorus but are low in calcium.

Yet liver is our very best food for iron; a liberal serving of it will furnish a whole day's iron supply. Other organ meats are also high in iron, and an average serving of lean muscle meat makes a considerable contribution to the daily quota of iron (see table on p. 55). Milk, so rich in calcium, is rather poor in iron; nevertheless a pint of milk will provide

one-tenth of the iron needed daily. In general, other foods of good calcium content (egg yolk, leafy vegetables, dried fruits, legumes and nuts, whole grains) also make important contributions to our iron supply. Other fruits and vegetables contribute lesser quantities but, if several liberal servings are taken, they help in getting one's quota of iron.

It is advisable to have two or three really iron-rich foods in the diet each day. These might be as follows:

For average diet:	For those who take only highly milled cereals:
Meat, 3 oz.	Liver, 2 oz.
Leafy vegetable	1 egg
Dried fruit	
For vegetarians:	
Leafy vegetable	
2 eggs	
Legume	

Potato, other vegetables and fruits (2 servings each), and the use of at least some whole-grain foods will make up the rest of the iron quota in the average diet.

It is wise to plan for three or four calcium-rich foods each day. The day's calcium quota might be met as follows:

For average diet:	For those who take no milk:
Milk, 1 pint	Cheese, American, 2 oz.
Leafy vegetable	2 eggs
1 egg	Green or leafy vegetable
Bread, whole-wheat, 4 slices	Bread, whole-wheat, 4 slices
	Cereal, whole-grain, 1 serving

For vegetarian or low-cost diets:

Milk, 1 pint

Dried fruit

Legume or nuts

Green vegetable

Again other foods that are included in the normal diet, especially extra servings of fruits and vegetables, must be relied on to fill out the balance of the daily quota of calcium. Children need a quart of milk each day to supply sufficient calcium for making the best growth.

Even though the diet should be built around several mineral-rich foods to be sure of getting one's quota of calcium and iron, there is room for a good deal of variety and individual choice. There are many different green and leafy vegetables, as well as several kinds of dried fruit and legumes, and these can be used in all sorts of dishes from stews to salads. Whole-grain cereals can appear in muffins, cookies, or cereal puddings and may even be used as "binders" in meat loaf or to thicken soup. Oatmeal is one of the cheapest and best whole-grain cereals. Cheese and peanut butter make interesting sauces for vegetables. Liver and other organ meats may be cooked in different ways or put into gravies or meat pies. Eggs, of course, find many uses in cookery.

Menus that include dishes made from mineral-rich foods are given on page 60. From the tables on pages 54 and 55, one may check one's own diet for a typical day as to calcium and iron content.

Add the approximate part of the day's allowances of calcium and iron furnished by the different foods taken and see whether the whole comes to 100 per cent, or a full quota of each mineral. If the score is over 100 per cent, you deserve a "gold star" on minerals, for extra minerals safeguard health.

SAMPLE MENUS FOR MINERAL-RICH DIETS¹

BREAKFAST

1	2	3
<p>Stewed dried figs on triscuit (thin cream)</p> <p>Poached egg on toast</p> <p>Coffee or milk</p>	<p>Orange juice</p> <p>Oatmeal with thin cream</p> <p>Toast, whole-wheat or enriched bread</p> <p>Coffee or milk</p>	<p>Dried peaches, stewed with raisins</p> <p>Cooked cereal with wheat germ added, top milk</p> <p>Coffee or milk</p>
LUNCH (or SUPPER)		
<p>Casserole of tomato, corn, and cottage cheese²</p> <p>Mustard greens</p> <p>Canned pineapple</p> <p>Soybean muffins*</p> <p>Milk</p>	<p>Beef broth</p> <p>Liver loaf*</p> <p>Broccoli and tomato salad*</p> <p>Graham crackers</p> <p>Maple cornstarch pudding*</p> <p>Tea</p>	<p>Tomato juice</p> <p>Lima bean and mushroom loaf*</p> <p>Julienne salad*</p> <p>Whole-wheat or enriched bread</p> <p>Cocoa</p>
DINNER		
<p>Steak and kidney pie*</p> <p>Baked potatoes</p> <p>Cauliflower with cream sauce</p> <p>Romaine with Roquefort cheese dressing</p> <p>Walnut-apricot steamed pud- ding with orange hard sauce*</p> <p>Demitasse</p>	<p>Fricassee of chicken, with gib- lets in gravy</p> <p>Scalloped potatoes and cheese*</p> <p>Beets, cooked with tops</p> <p>Eden salad*</p> <p>Chocolate chip oatmeal cook- ies*</p> <p>Milk</p>	<p>Cream of spinach soup</p> <p>Roast lamb with mint jelly</p> <p>Oven-browned potatoes</p> <p>Green peas</p> <p>Lettuce salad, French dressing</p> <p>Prune whip*</p> <p>Peanut cookies*</p> <p>Tea</p>

¹ Meals in vertical columns (1, 2, 3) form a unit for one day.

² Asterisk (*) indicates recipes given in back of book.

WHAT VITAMINS ARE AND DO

NOWADAYS you hear about vitamins over the radio, from your best friend, and from your doctor (who may also be your best friend), for vitamins are the current craze. Just what are they, and is it true that they are so important?

It is difficult to define vitamins in a few words. It is easier to say what they are not rather than what they are. They are not proteins, carbohydrates, or fats, and they are entirely different from the mineral elements. In fact the various vitamins differ so much from one another in chemical structure that it makes one wonder why they belong in one class of nutritive essentials. But all of them have these traits in common: They are found in very small amounts in foods, small amounts of them exert a great influence on the body, and they must be furnished to both plants and animals in order that they may live and grow. The name vitamins indicates that these substances are essential for life.

When it was discovered, about thirty-five years ago, that animals which ate plenty of pure proteins, carbohydrates, fats, and mineral salts nevertheless pined away and died, the scientists were as much surprised as anybody, for they had thought that these substances provided everything that the

body needed. Yet for years they had seen human beings develop peculiar diseases and die, when forced to live on restricted diets. Beriberi is one of the oldest diseases known, having been described in Chinese literature in 2697 B.C. For thousands of years it has taken a toll of lives in the Orient, but it has been more prevalent since the mechanical polishing of rice was introduced. On long sailing voyages, in the far North, during times of siege and famine, whenever no fresh, raw foods were to be had, people died from scurvy. Rickets, a bone disease, was so common among children in England that it was called the "English disease." Doctors tried to explain these diseases in many ways, but it occurred to only a few of the most imaginative scientists that perhaps people could fall ill and die because of a lack of something essential in the diet. Now these diseases are known as "dietary deficiency diseases" which are caused by prolonged lack of certain vitamins. A witty man defined a vitamin as "something that will make you sick if you don't eat it."

At first vitamins seemed very mysterious substances. They were present in such "natural" foods as milk, whole grains, and the fresh juice of oranges or lemons, absent from sugar, and present in small amounts only in refined or processed foods like white flour and polished rice. Since chemists knew what substances made up about 99.9 per cent of the natural foods, it was evident that the life-giving vita-

mins must be present in mere traces. It seemed impossible that it should ever be found out just what they were. There were apparently at least two kinds—one carried in fatty foods like butter and one that was water-soluble in other types of food. Since they were “unknowns,” they were designated simply as “factor *x*” and “factor *y*.” Others referred to them as “food hormones,” since, in the striking effect that very small amounts had on the whole body, their action resembled that of the potent substances (hormones) secreted into the blood by the thyroid, adrenal, and other ductless glands. Vitamins differed from hormones in that they could not be formed in the body but must be supplied in the food.

Chemists were naturally curious as to what these food hormones could be, and they have a way of sticking to a challenging riddle until they have solved it. In many widely separated parts of the world—Java and the Philippines, Europe, and the United States—they began to make extracts from foods known to be relatively rich in vitamins and thus to obtain the vitamins in concentrated form. The vitamin concentrate made from rice polishings, when given to sufferers from beriberi, caused the symptoms of this disease to disappear miraculously in a few hours. For years the chemists worked patiently, purifying and repurifying concentrates from enormous quantities of vitamin-rich foods, until they finally obtained vitamins free from other substances, in pure form. It took Dr. Robert Williams,

of the United States, twenty-three years to obtain enough of the pure vitamin from rice bran to enable him to find out its chemical structure, and another three years of hard work before he could make this vitamin "from scratch" in the laboratory. This great chemical achievement happened in 1936, and since then most of the other vitamins have been obtained as pure substances and can now be manufactured in laboratories. Thus the work of many men made the seemingly impossible possible and cleared up the mystery as to what vitamins are. Now they are familiarly called by their chemical names.

Meantime "new" vitamins were being discovered, and the vitamin family has increased from two to at least fifteen members in the last thirty years. Some ten other vitamins are thought to exist but have either not yet been chemically identified or else do not seem necessary for man. Individual vitamins will be described later, but here we are concerned with their family resemblances. While it may seem confusing that we need so many different ones, this does not need to worry us, because they are all present in natural foods, so that we should get enough of them all if we take a varied diet made up of many kinds of food, especially raw or unrefined foods.

Until about eight years ago we were completely in the dark as to why vitamins were essential to health and how they worked in the body. We knew that

lack of special ones caused certain tissues to degenerate, thus bringing on deficiency diseases with characteristic symptoms. Lack of one vitamin caused degeneration of nervous tissue, resulting in paralysis of the limbs in beriberi. Lack of another vitamin brought about the painful joints, swollen and bleeding gums, and hemorrhages under the skin seen in scurvy. Lack of another one resulted in the soft bones which are a characteristic symptom of rickets. At least in the milder cases, these symptoms disappeared and health was restored, when the lacking vitamin was given in the diet. However, we knew that vitamins must have a wider use in the body than just to keep certain special tissues healthy. Lack of them caused less serious disturbances in many parts of the body, and all of them seemed to be necessary for the proper growth of young animals. The growth of children might be stunted by lack of almost any vitamin.

The welfare of the whole body depends upon many chemical changes which are going on constantly in the various tissues. The body is an excellent chemical laboratory, and in it certain chemical results are brought about much more readily than chemists can reproduce them in a laboratory flask. This is because the body cells contain substances called "enzymes," which have the peculiar ability of hastening chemical changes without taking an active part in them. Each enzyme is able to bring about only one particular chemical change; they are specialists.

The action of enzymes is more familiar to us in chemical changes which occur elsewhere than in our bodies. You know very well that if grapes are crushed and left in a warm place they ferment and alcohol is formed from the grape sugar; similarly the action of yeast in producing a gas (carbon dioxide) that leavens bread is well known. These chemical changes are made possible by enzymes present in the grapes and yeast.

In the last few years it has been discovered that several of the vitamins form the active part of enzymes that are responsible for bringing about important chemical processes in the body. Naturally we cannot get along without them, and, since enzymes are not used up in the reactions which they bring about, a little of them goes a long way. Perhaps the most important chemical task performed in the body is the oxidation of carbohydrate, which takes place in tissue cells all over the body and by which energy is set free for the life and work of all tissues. The union of oxygen with body fuel (carbohydrate) takes place in many steps (so that energy is set free gradually), and at each of these stages one or more enzymes is necessary; if any essential enzyme is lacking, the whole chain of oxidation will be broken. At least three vitamins have been shown to be part of enzymes that play an essential role in the oxidation of carbohydrate. If one of these vitamins is supplied in too small amounts, the oxygen uptake of the cells is less than normal, and tissues that can-

not "breathe" or get the necessary energy for their life activities cannot be healthy. We do not yet know how all the vitamins achieve their beneficent effects, but it seems probable that many of them act in some similar manner to promote the life of cells, and hence the health of body tissues.

You can understand now why doctors often give vitamins to people who have certain chronic ailments, who are "run down" or are suffering from infections, in the hope that an extra supply of these substances will help the tissues to renewed health. Such persons may for years have been eating foods that supplied less than optimum amounts of vitamins. And, of course, those of us who are well are desirous of getting enough vitamins in our food to enable us to stay well. That is why vitamins have created such a furor—because they seem to the public to offer a "cure-all" for ill-health.

FAT-SOLUBLE VITAMINS

MILK, butter, and egg yolk were among the first foods known to contain vitamins, and it became evident that one or more vitamins were carried in the fatty portion of these foods. Four fat-soluble vitamins are now known, and the first to be discovered was christened vitamin A. (Other vitamins were called by letters of the alphabet in the order of their discovery.) Since they are soluble in and carried by fats, these vitamins are most abundant in fatty foods of animal origin. Inactive forms of some of them occur in vegetable foods, and these substances, called "provitamins," may be converted into the vitamins themselves in our bodies. Hence we can get or make fat-soluble vitamins from both animal and plant foods. In the case of vitamin A, the transformation of plant provitamin to animal vitamin seems to be brought about by enzymes in the liver, and an excess of fat-soluble vitamins can be stored in this organ.

Fat-soluble vitamins are fairly stable substances which are little affected by cooking processes. As they are insoluble in water, they are not lost in the cooking water, and they are little affected by heat alone. Some of them may be destroyed by exposure to light or air (oxidation), but this involves more severe treatment than is common in cooking, canning, or storing foods.

Each of these vitamins has some special task to perform in the body and is somewhat differently distributed in foods. For these reasons it is necessary to consider each of them separately.

VITAMIN A

If one does not get enough of this vitamin, he is likely to notice that his eyesight is poor, especially in dim light—a condition called “night-blindness.” In driving an automobile at night, he may experience a period of inability to see well after meeting a car with strong headlights. This is because vitamin A is essential to the rebuilding of pigments in the retina which are bleached by bright light, and, if there is little of this vitamin in the blood, normal vision will be restored slowly.

Or he may show the lack of vitamin A by an entirely different set of ailments—susceptibility to colds, sinus trouble, sore throats, abscesses in ears or mouth. This vitamin is one of the factors that is responsible for maintaining the membranes which line the ear, nose, mouth, and throat passages in healthy condition; since these passages open to the outside, there is plenty of chance for bacteria to come in contact with them. Bacteria are always about in the air, water, and food, but, if these membranes are in normal, resistant condition, we do not succumb to every stray germ. Taking a little vitamin A in cough drops, after one has a cold, could not be expected to do much good, but getting enough of this vitamin in the food every day does

help to keep these membranes, which are the "first line of defense" to prevent germs from gaining entrance to the body, in disease-resistant condition. Of course even the healthiest individual may get a cold if someone simply sprays cold germs at him or if he takes care of a sick person. The diet should also supply other nutrients needed for health along with vitamin A.

These nose and throat membranes are part of a system of epithelial tissues which cover the free surfaces and line all the cavities of the body. The skin and membranes that line the lung passages, digestive tract, and genito-urinary tract are all epithelial tissue, and vitamin A is essential for the health of this kind of tissue, wherever it occurs. In parts of the world where the food supply furnishes little of this vitamin, dry and scaly skin, with plugs of horny material about the hair follicles, is of common occurrence.

Babies and rapidly growing children need extra amounts of vitamin A for growth. Growth may be stunted by lack of this vitamin, and modern physicians see to it that babies get plenty of it, which is one of the reasons that we have "bigger and better" babies now. They get it not only from milk but from egg yolk, sieved green or yellow vegetables, and yellow fruits. If a baby is fed chiefly on skim milk, sugar, and cereals, it is likely to develop a peculiar eye disease called xerophthalmia, which means "dry eye." The tear ducts dry up, the eyelids become

swollen and sticky with pus, and bacteria may gain access to the eye itself, causing ulcers of the cornea and even loss of sight. The simple precaution of giving the child butterfat, in whole milk or cream, will prevent this deficiency disease.

Vitamin A is nearly colorless, but the provitamins A are bright yellow. In foods of animal origin (butterfat, cheese, and egg yolk) there is some of both the vitamin and the provitamins, so that the degree of yellowness does not always serve as an index of the vitamin potency; however, cows on green pasturage produce milk with yellower fat, which has higher vitamin-A potency, than when fed on dry feed. In green, leafy vegetables the presence of yellow pigments is masked by the green pigment, chlorophyll. In carrots the yellow provitamins are plainly visible, and they take their name, "carotenes," from this source. Sweet potatoes, squash, pumpkin, apricots, yellow peaches, and yellow corn all contain carotenes, and the depth of the color roughly indicates their vitamin-A value. Carotenes are only 40–60 per cent absorbed and converted into vitamin A in the body. Hence one will have to take more of them, if vegetable foods are the chief source of vitamin A, than if one gets it preformed in animal foods. In fish-liver oils, which are our richest source of this vitamin, all of it exists in the form of the colorless vitamin A. Animal fat and body fat of fishes carry some of this vitamin, but vegetable oils contain none.

The table on page 73 gives the portion of the daily allowance of this vitamin that a serving of various foods will contribute. An average serving of leafy vegetable will supply enough for two days, but the pint of milk called for daily in the adult "ration" furnishes only about one-sixth of the day's quota of vitamin A. Three squares of butter and one-fourth cup of light cream would carry enough vitamin A to make up, along with a pint of milk, half the day's allowance. Green or yellow vegetables and fruits, eggs, cheese, and other foods may contribute the remainder. Make any choice of foods that adds up to 100 per cent, or the day's full quota of vitamin A for an adult. If reducing, by taking skim milk and little or no butter and cream, more leafy, green or yellow vegetables and yellow fruits will be needed; and the same will be true if economy compels one to use margarine in place of butter and limits the use of eggs.

Women in late pregnancy and rapidly growing boys, sixteen to twenty years of age, need one-fifth more vitamin A than ordinary adults. Mothers who are nursing a baby have their requirement for this vitamin almost doubled. Children up to six years of age require half (or less) as much vitamin A as adults, and a quart of whole milk daily will go far to meet this need. But foods vary considerably (especially butterfat and egg yolk) in vitamin-A value, so that the amounts provided in the diet should allow a liberal margin. An excess intake of this vita-

APPROXIMATE PART OF DAILY QUOTA FOR ADULT
OF VITAMINS A AND D IN AVERAGE SERVINGS
OF COMMON FOODS

Food	A (Per Cent)	D (Per Cent)
Leafy vegetables (green), $\frac{1}{2}$ cup, cooked, av.....	200	.....
Apricots, fresh, 2-3 medium	100	.....
Carrots, $\frac{1}{2}$ cup, cooked.....		
Broccoli, $\frac{1}{2}$ cup, cooked.....		
Liver, beef, 2 oz., small serving.....	80	6.0
Sweet potato, $\frac{3}{4}$ med.....	60	.....
Squash (yellow), $\frac{1}{2}$ cup, cooked		
Peppers (green), 1 shell.....		
Apricots, dried, 4-6 halves....	30-50	.....
Cantaloupe, $\frac{1}{2}$ of 4 $\frac{1}{2}$ -in. melon.....		
Peaches (yellow), 1 large or 2 small		
Pumpkin, $\frac{1}{2}$ cup, cooked.....	25	7.5
Butter, 2 tbsp. or 3 av. squares.....	20	.....
Prunes, dried, 4-5.....		
String beans, $\frac{1}{2}$ cup, cooked		
Tomatoes, 1 large, or $\frac{1}{2}$ cup	16	2.5
Milk, 1 pint.....	12	12.5
Egg, 1 whole.....	12	.....
Cheese, American, 1 oz., av. serving		
Margarine with vitamin A, 2 tbsp...		
Green vegetables—asparagus, peas, lima beans, okra....	10	.....
Corn (yellow), $\frac{1}{2}$ cup.....		
Cream, heavy, 1 oz., 2 tbsp.....	8	.....
Cream, light, 2 oz., 4 tbsp., $\frac{1}{4}$ cup		
Salmon, red, canned, 2 oz., $\frac{1}{2}$ cup.....	3	75.0
Certain fruits—avocados, bananas, olives, black- berries, oranges, av. serving, each.....	5	.....
Vegetables, not green or yellow (pota- toes, beets, onions, summer squash)	1-2	.....
Legumes, dried, $\frac{1}{2}$ cup, cooked.....		
Nuts, 1 oz. (12-30 nuts); peanut but- ter, 2 tbsp.....		
Dried fruits (other than apricots and prunes).....		
Fresh fruits (other than those listed above).....	1	.....

min not only does no harm but can be stored against possible shortage or a time of greater need.

VITAMIN D

Man was not meant to be dependent on food for this second of the fat-soluble vitamins. Vitamin D is unique, as far as we now know, in being the only vitamin that human beings can make in their bodies. Just as plants make many vitamins with the aid of sunlight, so the invisible or ultra-violet rays in sunlight, when it strikes directly on the bare skin, transform a provitamin in the skin and underlying tissues into vitamin D. The ultra-violet rays are said to activate the vitamin, that is, to change it from an inactive into an active form. Thus when people lived and worked much out-of-doors, they had no difficulty in making enough vitamin D to supply their needs, and the same is true still for those who live in the tropics, where the sunlight is intense. But when people in temperate zones (with shorter hours of sunlight) began to take up indoor occupations and to crowd into cities, where clouds of smoke and dust absorbed the ultra-violet rays from what little sunlight could get through them, trouble began.

Lack of vitamin D does not produce noticeable results in adults. This vitamin is charged with the task of mobilizing calcium and phosphorus for use in the tissues, especially in the bones and teeth. If one does not get enough vitamin D, no matter how much calcium and phosphorus is supplied in the

diet, the level of these minerals in the blood is likely to be low. Children who suffer from vitamin-D lack cannot build strong bones and teeth, because they are unable to utilize the mineral elements that are necessary for making bones rigid. They may develop rickets, the most characteristic symptom of which is bones so soft and pliable that they are bent when the child begins to walk or grow into misshapen forms—bowlegs, “knobby” wrists or ribs, pigeon breast, and a small pelvis that may make child-bearing difficult in later life. The children may also be stunted in growth and susceptible to infections. The jaw may be underdeveloped so that the permanent teeth come in in crowded and misshapen condition and decay readily. Vitamins A, C, and probably also vitamin B are likewise required for healthy teeth. Of course rickets may develop in a child which is exposed to sunlight or given plenty of vitamin D if the calcium and phosphorus needed for bone-building are not provided in the diet. Even adults, especially pregnant women, may develop fragile (easily broken) bones and decaying teeth if they suffer severe lack of vitamin D.

We need only small amounts of this vitamin, but it is difficult to get even the small quantity required entirely from food, for vitamin D is very sparsely distributed in foods. It is found in appreciable amounts only in fish liver and body fats, in livers of other animals, in milk, cheese, and butter, and in egg yolk, and it is present in these foods in widely variable

amounts. A man would have to eat from one-fifth to three-quarters of a pound of butter, or two to fifteen egg yolks (depending on how rich in vitamin D these foods happened to be) in order to get his minimum daily requirement of this vitamin from food. Canned salmon may be relatively rich in vitamin D, but the amount varies from little, in the pale-pink varieties, to much, in the species whose flesh is deep red. But one cannot eat salmon every day. We all make some vitamin D with the aid of sunlight and get a little in our foods. For young children, especially in winter months, when sunlight is scarce, and for expectant mothers, we take no chances but give them small amounts of fish-liver oil (1 to 2 teaspoonfuls of cod-liver oil daily) to insure a plentiful supply. Fish-liver oils are really rich in vitamin D, since fishes (and other animals) store it in their livers, especially tuna fish and halibut. Oil from these sources should never be wasted. The precious vitamin D can be extracted and put into capsules for people who need it.

Another peculiarity of vitamin D is that one can get too much of it. Continuous overdoses of it may cause less than maximum growth in young children and other undesirable results. However, unless one plays too liberally with the few concentrated sources of this vitamin (such as fish-liver oils and concentrates made from them), the real problem is usually to get enough vitamin D. Getting out into the sunlight, with some of the skin bare of clothing, is the

best remedy for lack of vitamin D in the food. Most adults seem to get along fairly well on the amount of vitamin D that is supplied in the normal diet, supplemented by what they make in their bodies with the aid of sunlight.

VITAMINS E AND K

These are two more fat-soluble vitamins that have important and interesting uses in the body, but we do not need to worry about getting enough of them in the food. The average American diet uses enough foods that contain these vitamins—milk, meat, organ meats, wheat germ, other seeds, and leafy vegetables—so that few people experience a lack of either of them.

Vitamin E is necessary for reproduction in most higher animals. Without it the male becomes permanently sterile, and the female, though she may conceive young repeatedly, cannot carry them to delivery. Repeated abortions in animals have been successfully treated by giving vitamin E, but lack of this vitamin is probably seldom, if ever, a factor in human sterility.

Vitamin K is essential for normal clotting of the blood. Animals which are deprived of it may die from loss of blood by hemorrhages. This vitamin acts by helping to form a “ferment,” or enzyme, that must be present in sufficient amounts to enable blood to form a “clot.” It is not known whether the vitamin forms part of this enzyme or merely is essen-

tial to keep in health certain tissues that form it. But to be useful to the tissues, the vitamin K in foods must be absorbed from the digestive tract, and for this, bile, which enables fats to be absorbed, is necessary. Patients with obstructive jaundice, a disease in which the normal flow of bile from the liver into the digestive tract is prevented, are poor surgical risks because of a tendency to hemorrhage. Recently such patients have been prepared for surgical operations by the administration of bile salts and vitamin K by mouth, or by injecting this anti-hemorrhagic vitamin into the blood. Newborn babies sometimes show severe bleeding after birth injuries, since at birth the blood does not yet have the ability to clot normally. Some doctors now advise giving vitamin K, either to the mother before delivery or to the infant at birth. So this vitamin has been useful in saving human lives, even though most of us get plenty of it in our customary diet.

WATER-SOLUBLE VITAMINS

THE vitamins that will dissolve in water are more numerous and more widely distributed in nature than are fat-soluble vitamins. All forms of life seem to need them, from bacteria and tiny one-celled plants, such as yeast, up to and including man. In fact, yeast is one of our richest sources of the B-complex vitamins. Fruits and vegetables contain water-soluble vitamins dissolved in their sap or juices; animals have them carried in solution in blood to every cell of the body. Even the skin, hair, and nails get their share of essential vitamins through the blood.

One might think that, since this class of vitamins is present in almost everything that we eat, there would be no danger of not getting enough of them. But they are such potent substances that most plant foods contain them only in small amounts, sometimes mere traces. Nor do we have available any foods in which some animal has, conveniently for us, stored a considerable quantity of water-soluble vitamins, as fish (and other animals) store fat-soluble vitamins in their livers or cows put them into fat in milk or hens into yolks of eggs. Animals are unable to store appreciable amounts of water-soluble vitamins, a fact which makes human beings more dependent upon their day-to-day supply in food. If

one took twice as much of these vitamins as was needed on one day, most of the extra amount would be promptly excreted, dissolved in the urine, and one would require just as much the next day.

Then it is probable that some, perhaps much, of the original quantity of water-soluble vitamins in foods will be lost before the foods reach our dinner table. In the milling of grains, the major portion of their vitamin content, which is chiefly in the germ and outer layers, is mechanically removed. Several water-soluble vitamins are unstable compounds, more or less easily converted by oxidation into substances that are without vitamin activity. This destruction of vitamin may be hastened by exposure to light and air, by heating, or by enzymes present in fruits and vegetables. Potatoes that are stored for months will have a lower vitamin content than when fresh. Such foods as asparagus, tomatoes, and peaches begin to lose vitamin C as soon as they are picked and should be taken quickly to market. Fruits dried in the air and sun have lost most or all of this vitamin (C), which is very easily destroyed by oxidation. Canned foods, heated in sealed cans from which all air has been removed, may retain a large part of their original vitamin-C content.

Cooking is another cause of vitamin loss. As much as half of the water-soluble vitamins may be lost by solution in the cooking water. Prolonged heating causes vitamin destruction, especially if the cooking dish is not covered, if the vessel is of copper or iron, and above all if soda is added, with the misguided idea

of improving the appearance of cooked vegetables. Vitamin C in acid fruits and vegetables withstands heating very well. The vitamin content of meats is considerably reduced in broiling or roasting and, of course, by long stewing. Some vitamin loss is inevitable. The best we can do is to minimize this loss and to use enough vitamin-rich foods to allow a safe margin for losses.

So you see that it is not too easy to get one's full quota of water-soluble vitamins. Many persons get less of these vitamins than is needed for buoyant health. Scientists tell us that three or four times the amount of vitamins actually required to prevent deficiency diseases will bring surprising returns in better growth for children and less "half-sickness" for adults.

B-COMPLEX VITAMINS

This B-complex has turned out to be very complex indeed! It started out as one vitamin, the "anti-beriberi factor." It has developed into a whole family of at least ten and perhaps fifteen or sixteen members, which usually occur together in foods, although in varying proportions in different foods. So if one gets plenty of one of these vitamins, he is likely to get the rest of them along with it (though not necessarily); likewise, if one runs short on one of them in the diet, he is likely to be lacking in several of the others.

We shall introduce by name only five of the more important members of this vitamin family. The existence of a substance in rice polishings that pre-

vented or cured beriberi was discovered by a doctor in Java as early as 1897, but it was nearly fifteen years before this substance was recognized as a vitamin, called vitamin B. When it became evident that what had been thought to be a single vitamin was really several, the antiberiberi factor became known as B₁, and Williams later gave it the chemical name thiamin, which indicates that it contains sulfur. Now people ask for thiamin familiarly at drug stores.

A "first cousin" of B₁ was discovered about 1926 and was called at first vitamin G, then B₂. When its chemical structure became known, it was rechristened riboflavin. Ten years later nicotinic acid, a substance that chemists had made from nicotine in tobacco and kept on their shelves for years as of no practical use, was found to occur with the B vitamins in foods and to be the chief factor responsible for preventing the rather common dietary deficiency disease, pellagra. However, tobacco smokers still have to get their nicotinic acid from foods, because it cannot be made in the body from nicotine. From time to time other members of the B-complex came to light, and two of the most important and best-known of these are B₆, or pyridoxin, and pantothenic acid.

B₁, OR THIAMIN

This has been dubbed the "morale vitamin," because even a moderate lack of it causes one to be

depressed and irritable, nervous and "jittery." It is essential for the proper functioning of nervous tissue, yet perhaps it is more widely useful to all tissues of the body than any other single vitamin. Its influence on many tissues is explained by the fact that it forms the active part of an enzyme which aids tissue respiration. Thus it promotes the "oxygen uptake" of all cells and helps to keep them in healthy condition. Many persons who feel weak and nervous, lack appetite, and suffer from indigestion or constipation would benefit by getting more of this vitamin.

Since vitamin B₁ is necessary for growth and reproduction, young children and pregnant or nursing mothers have a special need for it. More of this vitamin is also required when the diet is high in carbohydrates or when one does muscular work, the energy for which is obtained by oxidizing carbohydrate in the tissues, because this vitamin is concerned in enabling tissues to burn or oxidize carbohydrates. Thus the thiamin requirement, like the calorie requirement, is greater for a man who works with his muscles than for one who works only with his head.

From what foods do we get thiamin (vitamin B₁)? By looking at the table on page 84, you will observe that, for the sized portions of foods ordinarily taken, only liver, heart, lean pork, milk, legumes, and whole grains contribute heavily to our day's quota of this vitamin. Milk has only a moderate B₁ content, and of the foods listed above as relatively rich

in it, whole-grain foods are the only ones consumed in quantity. Hence it is really difficult to get plenty of B₁ unless the diet includes some whole-grain products. Meats (other than pork and liver), leafy vegetables, potatoes, eggs, and nuts provide lesser but appreciable amounts. Most fruits and vegeta-

APPROXIMATE PART OF DAILY QUOTA FOR ADULT
OF VITAMINS B₁ AND B₂ IN AVERAGE
SERVINGS OF COMMON FOODS

Foods	B ₁ (Per Cent)	B ₂ (Per Cent)
Liver, beef, 2 oz., cooked.....	15.0	57.0
Heart, beef, 2 oz., cooked.....	20.0	36.0
Kidneys, 2 oz., cooked.....	6.5	25.0
Pork, lean, 3½ oz., cooked.....	33.0	11.0
Milk, fresh, raw, 1 pint.....	15.0	44.0
Soybeans, dried, ½ cup, cooked.....	24.0	13.0
Beans, green or lima, or green peas, ½ cup, cooked.....	15.0	12.0
Bread, whole-wheat, 4 slices.....	25.0	5.0
Leafy vegetables, ½ cup, cooked.....	8.0	16.0
Nuts, 1 oz. (12-30 nuts depending on kind), av.....	10.0	3.0
Peanut butter, 2 tbsp.....	10.0	4.5
Cereal, whole-grain, ¾ cup, cooked.....	10.0	1.5
Potato, white, 1 med., boiled (3½ oz.)...	9.0	3.0
Meats, other than pork, 3½ oz., cooked..	8.0	9.0
Legumes, dried, ½ cup, cooked.....	8.0	5.0
Cheese, American, av. serving, 1 oz.....	1.0	7.0
Cream, light, 2 oz., ¼ cup.....	1.0	4.0
Eggs, 1 whole.....	4.0	4.5
Sweet potato, 1 small (3½ oz.).....	6.0	4.5
Bread, white, 4 slices.....	4.0	3.0
Vegetables (other than legumes, leafy, or potato), av. serving.....	4.0	3.0
Fruits, dried, av. serving (3½ oz.).....	3.0	3.0
Fruits, fresh, av. serving (3½ oz.).....	3.0	2.0
Salad greens, av. serving (3½ oz.) (3 large leaves or ½ head of lettuce).....	2.0-4.0	3.0

bles furnish thiamin but in such small amounts that it would take many servings to help out much in the day's supply. Of course one can take thiamin in pills, but it is entirely possible to get an abundance of it in the normal diet by choosing foods wisely.

B₂, OR RIBOFLAVIN

Lack of this vitamin may be responsible for retarded growth, premature aging, and certain skin and eye disorders. It promotes and is essential for health and, like B₁, takes an active part in enzymes that help to burn carbohydrate in the tissues. Relatively larger amounts of it are needed by children, pregnant women, and those who do muscular labor.

Though a larger amount of riboflavin (B₂) is required than of thiamin (B₁), a shortage of it in the diet is less likely to occur, and effects of less than "optimum" amounts are less striking. Some of our best-liked and widely used foods contain vitamin B₂ in considerable quantities. Milk, organ meats, other meats, leafy vegetables, and legumes head the list. Milk contains much more of vitamin B₂ than of B₁, while seeds (whole grains, legumes, and nuts) are richer in B₁. Cheese, cream, eggs, vegetables, and fruits all contribute amounts of B₂ that help to make up the day's quota. If the percentage of the daily quota furnished by an average serving of these foods (as listed in the table on p. 84) looks small, it should be remembered that this is because the total quantity of B₂ needed is greater than that of B₁. The facts

that many foods carry considerable amounts of B_2 and that this vitamin is less likely to be destroyed by heat in cooking than B_1 should make it easy to choose a diet that gives the full quota of it. A pint of milk daily will provide nearly half of the total quantity needed.

OTHER B-COMPLEX VITAMINS

In the southern part of the United States, where poor people lived chiefly on corn meal and pork fat, many were sufferers from pellagra. These persons either dragged out a miserable existence for years, with recurring attacks each spring, or the worst cases were confined to institutions, where most of them died of the disease. People in other parts of the country who ate highly milled cereals and got little of dairy products, meat, eggs, and vegetables also developed this disease. The characteristic symptoms of pellagra are a reddish rash where the skin is exposed to light, sore tongue and mouth, diarrhea, and, in later stages, distressing nervous and mental disorders. Change to a good diet usually arrested milder cases but did not cure the more severe cases. After it was discovered that nicotinic acid was the missing factor in the diet, administration of this substance was found to cause the symptoms of pellagra to disappear with miraculous speed. Liver and yeast are the richest sources of this vitamin, but any diet that includes milk or cheese, eggs, lean meats, green and leafy vegetables, and whole-grain foods will pro-

vide nicotinic acid in sufficient quantities to prevent pellagra and maintain health.

Vitamin B₆, whose chemical name is pyridoxin, and pantothenic acid are two more vitamins of the B-complex that are necessary for growth and health. Although they are widely distributed in foods, and we do not require much of them to avoid real diseased conditions, the number of ailing persons who respond with improved health when given these pure vitamins by physicians indicates that many of us would be better for having more of them in our diets. Lack of pantothenic acid seems to be a causative factor in certain symptoms of aging, and it has aroused popular interest by claims that it is the long-sought "antigray-hair factor." Scientists are still looking for the "antibaldness factor," said to be another one of the many members of the group of B vitamins.

VITAMIN C, OR ASCORBIC ACID

Although you have doubtless had as many vitamins as you can "digest," there is another important one yet to be considered. This is the vitamin found in fresh raw foods, for lack of which sailors died of scurvy on long sailing voyages. Long before we knew that vitamins existed, it was recognized that small doses of lemon or lime juice would prevent scurvy. British sailors got the name of "limeys" because lemon juice was issued as part of their rations.

Vitamin C is the simplest of the vitamins chemi-

cally and was the first one to be isolated in pure form. It received the name of ascorbic acid to indicate that it is the antiscorbutic, or scurvy-preventing factor. It is a white crystalline substance which keeps well in dry tablets away from the air and is readily soluble in water. As it exists in moist state in foods, it is very unstable and easily loses its activity by combining with oxygen in the air. The possibility of destruction of much of the vitamin-C content of foods during storage, drying, canning, or cooking has previously been pointed out. Small amounts of the vitamin may survive this treatment, but, in order to get as much as we need, there should be some fresh fruit and uncooked vegetables in the diet each day. These are the only types of food on which we can count for getting our quota of vitamin C.

It is a bit ironical that this perishable vitamin should be the one which we need in the largest quantities, also that man, monkeys, and guinea pigs are the only animals that are unable to make ascorbic acid in their bodies. As it cannot be stored to any extent in the tissues, we are very dependent on our day-to-day supply in fresh foods, and lack of sufficient amounts in the diet quickly becomes apparent. In a more natural state of life, man had easy access to fresh food and ate much of his food raw. Few of us can pick ripe oranges in our back yard; often they are picked rather green (which means less vitamin C in them), transported across a continent or ocean, and stored for months before they reach

the consumer. Under present-day conditions probably many families get less than optimum amounts of this vitamin.

It does not take very much vitamin C to prevent the bleeding gums and loose teeth, sore joints, and hemorrhages under the skin that are characteristic of scurvy. According to pediatricians, a pint of average unheated milk will supply enough vitamin C to keep an infant from having scurvy symptoms, but the child may be weak and pallid, listless or irritable, and fail to make proper growth—a condition known as latent or subacute scurvy. The baby may be restored to health and made to grow by giving it daily a few tablespoonfuls of orange juice, rich in vitamin C. Older children and adults need this vitamin in considerable amounts. Low intakes of vitamin C lead to increased susceptibility to infections; liberal amounts help the body to resist or overcome invasions of bacteria. Plenty of this vitamin in the diet helps in many ways to promote physical stamina and health.

From the table on page 90, it may be seen that practically all fresh fruits and vegetables contribute vitamin C in the diet—more of it in the raw state, less after cooking. Peppers are especially rich in this vitamin. Cauliflower, broccoli, and kohlrabi contain surprising amounts of vitamin C, provided they are used raw or cooked only a short time (chiefly by steaming). All citrus fruits, berries (especially strawberries), cantaloupe, and tomatoes (either fresh or

APPROXIMATE PART OF DAILY QUOTA FOR ADULT
OF VITAMIN C IN AVERAGE SERVINGS
OF FRUITS AND VEGETABLES

	Per Co
Peppers, green, cooked, 1 shell.....	90
Oranges, 1 med.	} each..... 72.
Orange or lemon juice, $\frac{1}{2}$ cup..	
Broccoli, $\frac{1}{2}$ cup, cooked.....	70.
Cauliflower, $\frac{1}{2}$ – $\frac{2}{3}$ cup, cooked..	} each..... 60.
Kohlrabi, $\frac{1}{2}$ – $\frac{2}{3}$ cup, cooked....	
Grapefruit, $\frac{1}{2}$ med., or $\frac{1}{2}$ cup juice...	} each..... 40–5
Strawberries, 10 large.....	
Loganberries, $\frac{3}{4}$ –1 cup.....	
Cantaloupe, $\frac{1}{2}$ of 4 $\frac{1}{2}$ -in. melon.....	
Cabbage, raw, $\frac{3}{4}$ –1 cup.....	
Leafy vegetable, cooked, $\frac{1}{2}$ cup, av...	} each..... 33.
Tomatoes, 1 fresh, or $\frac{1}{2}$ cup canned..	
Turnip, raw, $\frac{1}{2}$ cup cubes.....	} each..... 26.
Pineapple, fresh, $\frac{1}{2}$ – $\frac{2}{3}$ cup.....	
Beans, lima, fresh, $\frac{1}{2}$ cup.....	
Beans, soy, fresh, $\frac{2}{3}$ cup, cooked..	} each..... 20.
Beans, string, $\frac{2}{3}$ cup, cooked..	
Cabbage, $\frac{2}{3}$ cup, cooked.....	
Turnips, $\frac{1}{2}$ cup, cooked.....	
Peas, green, $\frac{1}{2}$ cup, cooked...	
Asparagus, 8–10 stalks.....	} each..... 10.
Potatoes, white, 1 med., cooked..	
Raspberries, red, 1 cup.....	} each..... 8.
Fruits, fresh, other than listed above, av. serving.....	
Vegetables, cooked, other than listed above, $\frac{1}{2}$ cup....	
Salad greens, raw, av. serving.....	6.

canned) are valuable sources. A small (6 oz.) glass of orange juice provides enough vitamin C for the whole day, while the same quantity of tomato juice will furnish about half of the daily quota. Cooked leafy vegetables and raw cabbage or turnip are excellent sources, an average serving of any one of them contributing from one-third to one-half of the day's total need. A medium-sized potato, even after cooking, may give as much as a tenth of the day's quota. Potatoes often form the "back-log" for vitamin C in low-cost diets, when many of them are eaten and few fresh fruits can be afforded. Many other fruits and vegetables, especially those eaten raw, contribute appreciable amounts of this vitamin. Raw milk carries some vitamin C but is an undependable source.

The safest way to get a liberal margin of vitamin C is to have one food that is really rich in this vitamin on the menu each day. If such foods are too scarce or expensive, plan for three or four servings of foods that can be depended upon for moderate amounts.

HOW TO GET ADEQUATE VITAMINS IN THE DIET

THE best way to get vitamins is in food which will provide a balanced assortment of all the various vitamins, along with minerals and other things that we need. Don't give up and say: "I'll not bother about vitamins in what I eat but just take mine in a capsule" or "I'll eat whatever I like and take a chance that nothing very dreadful will happen to me." It is relatively easy with a little planning, to get enough of them in the diet. We do not have to count vitamins any more than we do calories, protein, or minerals. All we need to do is to follow the dietary pattern given on pages 39-40, and we will be assured of getting all the many different vitamins in sufficient quantity. For these diet rules were designed by a committee of nutritional experts who have checked a great many diets that people planned in accordance with these rules and have found that such diets actually do measure up to standard for vitamins. They have done the counting for us, and all we have to do is to play the game fairly by following the rules.

The special rules that safeguard our vitamin supply are:

1. Two or more servings of vegetables daily, other than potato, one of which shall frequently be a

raw, green, or yellow vegetable. Leafy, green, and yellow vegetables are the best plant sources of vitamin A, and the raw vegetables provide vitamin C.

2. Bread and cereals shall be mostly of whole grain (or enriched with B vitamins). Whole grains are one of the best sources of B-complex vitamins, especially the important B₁.

3. Two or more servings of fruit daily, one of which should be citrus fruit or tomato. This rule is obviously designed to assure enough vitamin C, along with other vitamins and minerals provided in fruits.

4. At least a pint of milk and two tablespoons of butter daily and three to five eggs weekly for each person. This assures animal sources of vitamin A as well as other vitamins and minerals carried by eggs and dairy products.

Potatoes once a day is a good rule, since this inexpensive vegetable provides not only energy but minerals and several vitamins. One or more servings of meat, fish, cheese, or legumes daily also mean important additions to the vitamin content of the diet.

Would the following of this dietary pattern involve much change in our present food habits? Yes, in some respects. It calls for more milk, fruit, and vegetables than many persons are accustomed to take. The rule for use of at least some whole-grain foods would demand a right-about face for those who now eat only white bread and highly milled

cereals. We probably use somewhat more meat and decidedly less cheese and legumes than is suggested. And we would need to choose fruits and vegetables with more care, to use citrus fruits and tomatoes, green and yellow vegetables, more freely than we now do.

Is the pattern practical for families with small incomes? Yes, if they know how to select foods wisely and to avoid loss of vitamins in cooking. If it is possible for such a family to have a garden, chickens, or a cow, the home-produced vegetables, fruit, eggs, or milk will be of tremendous assistance in meeting the dietary rules for good nutrition at low cost. If not, only the cheaper kinds of dairy products, fruit, and vegetables must be used, and there will be less variety in the diet. Inexpensive sources of vitamin C are perhaps the most difficult problem, where citrus fruits and fresh tomatoes are costly. But raw cabbage or turnips and some salad greens are usually inexpensive, leafy vegetables and potatoes are good and cheap sources of vitamin C, and, of course, canned tomatoes are excellent for this vitamin.

Do the rules laid down in our "pattern" give enough leeway for variety and individual preference? For example, consider rule 1 as to the frequent use of green and yellow vegetables. There are fifteen or more commonly used leafy vegetables which may be either cooked or served raw in salads. Even a little parsley or watercress used as garnish

adds much vitamin A if it is eaten. The green (but not leafy) vegetables include broccoli, asparagus, artichokes, okra, green peppers, green peas, and string beans, also green onions. Among the yellow vegetables are sweet potatoes and pumpkin, carrots, and several kinds of squash. Apricots, yellow peaches, and yellow corn meal are other good sources of vitamin A. With this amount of choice, it should not "cramp one's style" to get one of these vitamin-A-rich foods in the menu "frequently," which is an elastic term that might be stretched to mean two servings a day or one serving every other day, according to one's wishes.

Other rules allow considerable freedom of choice. If one really cannot learn to like whole-grain bread and cereals, he should use highly milled products which have been "enriched" by addition of certain minerals and vitamins. If one likes and can afford meats, he may have one or more servings daily; if his inclination is against much meat, he can use it seldom and go in more for fish, legumes, and cheese. Serving liver or other organ meats once a week is a good nutritive practice. Small amounts of meat mixed with cereal foods or vegetables, and cheaper cuts of meat will fill the bill for one serving daily (or less often) in low-cost diets. Eggs may be used in quantities varying from three to seven per person weekly, as costs and tastes determine. Energy foods—starchy foods and fats, sweets and desserts—may

be varied according to appetite and needs, after one has eaten the required foods. Milk, one pint for adults and one quart for children daily, is the only hard-and-fast rule in the dietary pattern (and, even here, cream or cheese may replace part of the milk for adults).

We might add a few rules of our own as to how to conserve vitamins to prevent their loss between the grocery store and the table.

Buy fresh fruits and vegetables in small enough quantities to insure quick use. Wash them quickly and store them in the refrigerator if possible. (Fruit will not ripen in refrigerator.)

Serve fruit and vegetables raw as often as feasible.

To prevent loss of vitamins (and minerals) in cooking, cook some vegetables with "skins" on, cook by steaming, broiling, or baking rather than by boiling, do not cut in small pieces, do not add soda, cook in tightly covered vessel in as little water as possible, and cook as short a time as possible.

Pare and cut up fruits for salads or vegetables for cooking immediately before using. Do not let them stand exposed to air or in water. Do not squeeze orange juice for breakfast the night before.

When boiling vegetables, put them into boiling (salted) water, reduce heat to keep water just boiling, cook only until vegetables are tender enough to eat, remove from fire and drain off cooking water (which usually should be saved for soups or sauces), season, and serve at once.

Cooking in pressure cooker may cause less loss of vitamins than ordinary boiling, provided little water is used and the cooking time is very short.

Frozen foods should be kept in refrigerator until used. Do not allow them to thaw out before cooking; start the cooking process while they are in a frozen state.

Left-over foods should be stored in refrigerator in covered containers and used as soon as possible.

SAMPLE MENUS FOR VITAMIN-RICH DIETS¹

BREAKFAST

1

Orange juice
Cornflakes with top milk
Wheat-germ muffins*₂
Strawberry jam
Coffee or milk

2

Fresh berries
Puffed wheat with top milk
Boiled egg
Toast (whole-wheat or enriched bread)
Coffee or milk

3

Stewed apricots
Oatmeal with top milk
Toast (whole-wheat or enriched bread)
Cocoa

LUNCH (or SUPPER)

Vegetable meat broth*
Cheese fondue*
Celery creole style*
Canned loganberries
Honey bran cookies*
Milk

Tomatoes stuffed with liver*
Swiss salad*
Whole-wheat or enriched bread
Cantaloupe
Milk

Tomato juice
Peanut and carrot loaf*
Spring garden salad*
Whole-wheat or enriched bread
Tea

DINNER

Apricot nectar
Braised beef heart (or kidney sauté)*
Green lima beans
Kohlrabi
Jellied tomato salad
Whole-wheat or enriched bread
Carrot custard pie*

Cream of onion soup
Savory meat loaf*
Baked potato
Baked winter squash*
Lettuce salad, French dressing
Whole-wheat or enriched bread
Upside-down cherry puffs*

Fresh fruit cup
Roast pork
Sweet potatoes in orange shells*
String beans
Whole-wheat or enriched bread
Cup custard with caramel sauce
Wheat-germ cookies*

¹ Meals in vertical columns (1, 2, 3) form a unit for one day. Butter for table use at all meals.
² Asterisk (*) indicates recipes given in back of book.

DO WE NEED ENRICHED FOODS?

ENRICHED foods are those to which vitamins or minerals, or both, have been added in various ways. Although the terms “enriched,” “fortified,” “restored,” and “reinforced,” as applied to foods, have minor distinctions of meaning, all of them imply that the usual vitamin or mineral content of the food has been increased in some manner. Such foods were introduced with the idea of making certain that everyone would get enough of these nutritive essentials for health. Obviously, this object could best be attained by enriching staple foods—those that almost everyone eats in considerable amounts. Persons who are already getting enough vitamins and minerals in their diet do not need enriched foods, though such foods will probably do them no harm.

But we still have with us, and are likely to have for some time to come, certain classes of people who would benefit by extra amounts of vitamins and minerals in a few widely used, inexpensive foods, namely, (1) those who have acquired wrong food habits and won't alter them or who have not been taught to make wise choices in food; (2) those who, because of sensitive digestive tracts, really should not take harsh foods such as whole-grain breads and cereals; (3) those who cannot afford to buy some of

the best mineral- and vitamin-bearing foods (cream and butter, eggs, fruits, and vegetables, etc.); (4) those who cannot get out into sunshine, thereby manufacturing their own vitamin D.

You are sure to know several persons who qualify in one or more of these classes—in fact, you may belong there yourself. The food habits that are acquired in early life are hard to change, and the teachings of nutrition are of recent date. Modern children like spinach and whole-grain cereals (some of them even like cod-liver oil, if they began taking it in infancy), and most of our young people drink milk. But two or three generations have been trained to prefer white bread and to use much sugar. Re-education and change of habits come slowly. Rich and poor alike can be ignorant or perverse about eating what is “good for them,” while about a fourth of all the families in the country have so little money that their main problem is to get enough energy-bearing foods for what they have to spend.

Bread is the logical food to enrich. It is cheap, filling, and liked by everyone. It seems sensible to put back the vitamins and minerals that were removed in milling white flour, though of course it would be more sensible not to take them out in the first place. A brownish-yellow flour is available now (though not in large quantity) from which only the rougher bran has been removed and in which the germ and outer coats of the grain are retained. This

flour makes excellent bread which does not need to be enriched as to minerals and vitamins. The government and milling agencies have recently sponsored "enriched" white bread, to which certain B-complex vitamins and iron have been added, though not up to the level in which they are found in whole-wheat bread. Bread may also be reinforced as to mineral and vitamin content by addition of wheat germ, dried brewers' yeast, or dried milk, any one of which practices may be used in home baking.

Cereals have also been enriched, or "restored," with added B-complex vitamins (especially B₁, or thiamin) and iron. Some have been "irradiated," that is, exposed to ultra-violet light, by which treatment a small amount of vitamin D is developed in them.

Milk has had its normal low content of vitamin D reinforced by three different means—by exposure to ultra-violet light, by addition of tasteless vitamin-D-rich extracts made from cod-liver oil, and by the feeding of irradiated yeast to cows. Such vitamin-D milk is particularly useful for infants and young children to prevent rickets and promote the building of strong bones, since the bone-building minerals, calcium and phosphorus, are also provided in milk.

Margarines are now generally fortified by addition of vitamin A, and sometimes vitamin D, both of which are valuable constituents of butter. This makes margarine nutritionally more acceptable as a substitute for butter.

Peanut butter with yeast added (the flavor of the peanuts covers that of yeast) has been sponsored by nutritionists, who claim that a sandwich made of two slices of whole-wheat bread spread with the enriched peanut butter will supply a whole day's quota of the B-complex vitamins.

Refined salt to which iodine compounds have been added, so-called "iodized salt," is useful in regions where the iodine content of foods and water is low. It might be called a "restored" food, since unrefined sea salt normally contains iodine.

A statement of the kinds and amounts of vitamins which have been added should be given on the label of a package of any enriched food, and the prospective purchaser should look for such a label. Even if the exact number of vitamin "units" means little to her, it is an evidence of good faith on the part of the manufacturer. Reputable firms have their products checked frequently as to vitamin content and will not make a statement which they could not prove if necessary. Products that carry no statement of quantity of vitamins present may contain them only in negligible amounts. An exception to this rule are such foods as enriched white bread and vitamin-D milk, for which a minimum and maximum standard as to added minerals or vitamins is fixed by public health rules or other legal regulations. If these foods carry the trade-label that shows they are enriched or fortified, one may rest assured that they conform to the standards set by law.

There are valid reasons for enriching white bread with vitamins and minerals, since it is a food that has been artificially rendered deficient in these substances yet is consumed in large amounts. The fortifying of margarines with vitamin A, in the same amount in which it is found in butter, is obviously a safeguard to health. Likewise it is a good policy to have a few staple foods reinforced with vitamin D, which is so sparsely provided in foods.

The enrichment of other foods is probably not needed. We have available many natural foods that are rich in minerals and vitamins. Why should we not learn to use and like these foods, instead of paying someone to put vitamins into an artificial product? Manufacturers of food products have been quick to take advantage of the public's awakening as to the need for vitamins. We have vitamins added to everything from chewing gum and face creams to candy and ice cream. Indiscriminate addition of vitamins to all sorts of foods in which they are not normally found may be dangerous and certainly is unnecessary. Natural foods provide properly balanced mixtures, not huge amounts of one vitamin and none of another, and they may also carry vitamins about which we know nothing as yet. The normal and wise course is to get one's vitamin supply from a wide variety of natural foods instead of relying upon one enriched food for the whole day's quota.

WHEN VITAMIN CONCENTRATES ARE USEFUL

TO SEE the numbers of persons lined up at the drug stores to buy vitamins these days and the great array of these preparations on the druggists' shelves, one finds it difficult to believe that probably millions of people in the country have never heard of a vitamin. The money spent for vitamins must be reaching the same staggering sums as the amounts spent for laxatives and cold remedies. All sorts of advertising urge concentrated preparations of vitamins upon us, and there are evidently swarms of people who like to take something in a pill or are ready to take a chance on anything that may make them feel better.

Yet, rightly used, vitamin concentrates are a boon to humanity. The most reputable doctors prescribe them, both as food and as medicine, and many lives have unquestionably been saved since they have been available, which otherwise might have been lost. They should be used freely in cases where they are needed, but not indiscriminately by anyone and everyone. What are they, and when are they needed?

The term is widely used to cover all preparations that contain vitamins in much more concentrated form than they are found in foods. They fall into three classes:

1. The chemically pure vitamins, usually made in laboratories and dispensed in tablets of varying strengths;
2. Concentrated extracts made from vitamin-rich natural sources, e.g., extracts rich in vitamins A and D made from fish-liver oils and sold in capsules; extracts of yeast or liver, especially rich in B-complex vitamins, sold in tablets, capsules, or liquid form;
3. Natural substances that are especially rich in vitamins but not generally used as food, e.g., fish-liver oils, dried yeast, wheat germ, and bran.

The man-made vitamins are just as good, have precisely the same effects in the body, as those obtained from natural sources. It is sometimes very advantageous to be able to get large doses of vitamins in small bulk, for it would be impossible to eat the large bulk of food required to furnish anywhere near this quantity of vitamins. With pure vitamins the dose can be accurately measured, and a special vitamin can be given in large amounts when needed. Pure vitamins are the most expensive of these preparations, concentrated extracts are somewhat less costly, while such naturally rich sources as the fish-liver oils, yeast, wheat germ, and bran are comparatively cheap. Not everyone can take the latter substances, however, and the condition of the individual will often determine which type of preparation should be used.

Vitamin concentrates are particularly helpful for the following types of sick people:

1. Those who are suffering from long continued lack of one or more vitamins in the diet;
2. Those who have a disease or disorder in which vitamins may assist body tissues to repair damage or to overcome bacterial invasion or certain organs to function more normally;
3. Those who have to live for long periods on restricted diets for the treatment of some abnormal condition.

In the first class belong not only persons with real dietary deficiency diseases like scurvy, rickets, and pellagra but others who show early symptoms of lack of vitamins (such as night-blindness, neuritis, and many other symptoms associated with vitamin lack). A physician will often be able to recognize the special vitamin that has been provided in the diet in too small amounts from the characteristic symptoms present, or he may make blood tests or other tests which will give him this information. Sometimes a general run-down condition may be due to lack of several vitamins, or it may be due to factors other than vitamin lack. Obviously, it is impossible for a layman to tell whether or not vitamin concentrates will be helpful and which vitamins are especially needed. The prescribing of vitamins to assist the body to repair damages and aid in overcoming certain abnormal conditions lies even more definitely in the physician's province.

Patients with a sensitive digestive tract frequently must eliminate harsh or irritating substances from the diet. This is true in gastric or duodenal ulcer, colitis, spastic constipation, and similar disorders. Although sieved vegetable or fruit pulp and juices can usually be given, it may be unwise to take fruits and vegetables in sufficient quantities to supply the needed vitamins. Whole-grain cereals are not tolerated, and in some cases raw fruits cannot be taken. In allergy cases, several of the foods upon which we depend heavily for vitamins (milk, eggs, etc.) may have to be ruled out of the diet. In all such cases where the diet has to be restricted over a long period, it is a great comfort to be able to turn to vitamin concentrates to make good any lack of vitamins in the diet.

Concentrated sources of vitamins may also be invaluable in emergencies, when normal food supplies are not available for one reason or another. They are included in rations for soldiers who must "travel light," for civilian populations in countries where vitamin-bearing foods are very scarce, and are sometimes issued by the government to persons who have insufficient money to buy as much of vitamin-bearing foods as they need. Vitamin concentrates are light, occupy little space, and keep well; hence, they are convenient for transporting long distances or holding in storage against time of need. It is a great thing that they are available now at moderate cost to help safeguard the health of large groups of people in times of food scarcity.

Nevertheless, it is less expensive and better to get vitamins in foods whenever one is able to do so. For normal persons, vitamin concentrates are luxuries. They are beyond the reach of the poor and should not be needed by well people with adequate incomes, provided foods are wisely chosen. It is not "smart" to eat whatever one wishes and then "play safe" by taking drug-store vitamins.

RECIPES

RECIPES

THIS group of recipes is offered to suggest to the reader ways in which certain too-little-used protective foods may be incorporated in palatable dishes. Recipes were selected which feature the use of whole grains, legumes, nuts, milk and cheese, fruits (especially dried ones), and vegetables (especially leafy, green, and yellow ones).

Because of present food shortages and the increased cost of other foods, the included recipes are confined to those which call for sugar in modest amounts or for various "sugar substitutes," that use fats sparingly (in many instances fats other than butter are either specified or it is indicated that they may be used), and that use eggs by ones or twos (instead of nonchalantly directing one to "add the well-beaten whites of six eggs"). Meat dishes are chiefly limited to those which call for less expensive cuts or in which meat is combined with some cereal product. Hence these recipes will not only provide minerals and vitamins but will do so at relatively low cost. Plenty of more expensive recipes are available from other sources.

While these are not "gourmet" recipes, the products are attractive and good tasting, especially when prepared by an experienced cook. Many persons need to develop a liking for more of the mineral- and

vitamin-rich foods. Of course no one person will like all the dishes suggested, but, if the housewife finds several new ideas for introducing such foods into the diet and is stimulated to look elsewhere for similar types of recipes, the nutrition of her family will be benefited thereby.

These recipes were drawn from many sources. A goodly number are from World War I food bulletins or from more recent government bulletins, while some are original or from friends. The recipes for cream of carrot soup, stuffed onions, scalloped cauliflower and tomatoes, scalloped onions and carrots, are quoted from *Good Food and How To Cook It*, by Phyllis Newill, with permission of D. Appleton-Century Company; those for smothered zucchini and spaghetti Neapolitan are from *The European Cookbook for American Homes*, by Cora, Rose, and Robert Carlton Brown, reprinted by permission of Farrar and Rinehart, Incorporated. For permission to reprint certain other recipes, we are indebted to the following: the Metropolitan Life Insurance Company, National Live-Stock and Meat Board, the Quaker Oats Company, California Fruit-Growers' Exchange, California Walnut-Growers' Association, Dried Fruit Association of California, Charles B. Knox Gelatine Company, Corn Products Refining Company (Karo and Mazola), Lever Brothers Company (Spry), Penick and Ford, Limited (Brer Rabbit Molasses), and General Foods Corporation (Minute Tapioca).

SOUPS

VEGETABLE MEAT BROTH

2 lb. soup bone ($\frac{1}{2}$ bone,	2 cups tomatoes (canned)
$\frac{1}{2}$ meat)	1 cup carrots (cubed)
2 tbsp. fat	$\frac{1}{4}$ cup onion (chopped)
2 qt. water	$\frac{1}{2}$ cup celery (chopped)
4 tsp. salt	$\frac{1}{2}$ cup oatmeal (uncooked)
	$\frac{1}{4}$ tsp. pepper

Remove part of meat from cracked soup bone, cut meat into cubes, and brown lightly in hot fat. Place meat, soup bone, water, salt, and pepper in soup kettle. Cover tightly and simmer approximately 2 hours. Cool, strain, and chill sufficiently so that excess fat may be skimmed off. There should be $6\frac{1}{2}$ cups of soup stock. Return stock to kettle and add vegetables. Bring to a boil, then slowly add oatmeal. Cover and simmer approximately $\frac{1}{2}$ hour, or until vegetables are tender. Soup meat used in making the stock may be cut in small pieces and added. Serve with finely chopped parsley, if desired. Serves 8.

FRENCH ONION SOUP

1 lb. mild onions	4 cups liquid from pork
2 tbsp. margarine	or other meat stock
	Toast
	Grated sharp cheese

Peel onions, slice thinly, and fry in fat until golden brown. Add stock and simmer 30 minutes. Place toast in bottom of individual soup dishes and pour soup over. Sprinkle with grated cheese. Serves 3-4.

CREAM OF POTATO SOUP

4 medium-sized potatoes	$\frac{1}{2}$ tsp. celery salt
$1\frac{1}{2}$ pt. milk	2 tbsp. butter
4 tsp. grated onion	1 tsp. salt
4 tsp. chopped parsley	

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Wash, pare, and slice the potatoes. Cook in boiling water until tender, using just enough water to cover the potatoes. Mash the potatoes in their own liquid. Combine with milk. Heat to boiling, add the seasonings and chopped parsley just before serving. Serves 4.

CREAM OF CARROT SOUP

3 tbsp. butter	$\frac{1}{2}$ tsp. sugar
2 cups carrots, scraped and sliced thin	3 cups beef stock
1 tsp. salt	$\frac{1}{4}$ cup rice
	$\frac{1}{2}$ cup cream
	$\frac{1}{2}$ cup milk

Melt the butter in a saucepan over low heat. Add the carrots, salt, sugar. Cover and fry gently for 20 minutes, stirring occasionally.

Bring stock to a boil and add carrots. Wash rice and add. Cover and boil very gently for one hour. Mash through a strainer, add milk and cream, and reheat. Serve sprinkled with chopped chives, if desired. Serves 3-4.

CORN CHOWDER

$1\frac{1}{3}$ cups corn (No. 1 can)	1 tbsp. butter
1 pt. milk	1 tbsp. cornstarch
2 medium-sized onions, diced	Salt and pepper
3 medium-sized potatoes, diced	

Cook potatoes and onions in 2 cups boiling water until tender. Then add corn, milk, and cornstarch blended to a smooth paste, butter, salt, and pepper. Cook 10 minutes, stirring occasionally. Serve hot. Serves 4-6.

DRIED GREEN-PEA SOUP

2 cups dried green peas	1 tbsp. salt
2 tbsp. butter	$\frac{1}{4}$ tsp. white pepper
1 tbsp. onion	1 tbsp. parsley
	Pinch of paprika

Wash and soak peas for 24 hours. Drain, add three quarts of boiling water, and simmer until tender. Mash peas through strainer, mix with liquid in which they were boiled, and return to the fire. Brown finely cut onion in butter until tender and then add to mixture of strained peas and water. Add salt, pepper, parsley, and paprika. Serves 6-8.

LENTIL SOUP

1 cup dried lentils	1 clove garlic, if desired
$\frac{1}{4}$ cup salad oil	1 sprig parsley
1 medium-sized onion	1 stalk celery
1 cup canned tomatoes	

Soak the lentils overnight. Drain, cover with cold water, and boil until tender, or for 15-20 minutes. Chop onion, parsley, and celery fine and fry in the oil, seasoned with generous amount of salt and pepper. When vegetables are a delicate brown, add to them the tomatoes and two cups of broth from the lentils. Let mixture boil a minute, then pour it into the kettle of lentils, which may be sieved first if preferred. Dried beans may be used instead of lentils but require longer cooking. Serves 5-6.

BLACK-BEAN SOUP

1 cup black beans	2 tbsp. butter
$1\frac{1}{2}$ qt. water	2 tbsp. flour
1 onion	2 hard-cooked eggs
1 tbsp. fat	$\frac{1}{2}$ tsp. mustard
2 stalks celery	Pepper, salt, paprika
1 lemon	

Soak beans overnight. Drain them and cover with the $1\frac{1}{2}$ quarts of cold water. Add sliced onion, which has been browned in the fat, also stalks of celery cut into inch pieces. Simmer until beans are soft (from 1 to $1\frac{1}{2}$ hours), adding more water if needed. Press through a sieve, bring to boiling-point

again, then add seasonings—mustard, pepper, salt, and paprika to taste. Heat butter and stir flour gradually into it, cook for few minutes until brown, stirring constantly. Add browned butter-flour mixture to soup to prevent it from separating. Cut the hard-boiled eggs and lemon in thin slices and add to strained soup just before serving. Serves 5-6.

INEXPENSIVE MEAT DISHES

AMERICAN GOULASH

2 lb. beef neck or shank	$\frac{1}{2}$ cup thick sour cream
Flour for dredging	$\frac{1}{2}$ cup water
Lard for browning	2 tbsp. grated cheese
2 medium-sized onions	Salt and pepper

Have beef neck or shank cut into 1-inch cubes. Dredge these with flour and brown in hot lard. Add the onions, water, sour cream, grated cheese, salt, and pepper. Cover tightly and let cook slowly until tender, or about 2 hours. Add more water when necessary. Serve the meat on a large platter with the sour-cream sauce. Serves 5-6.

MEAT STEW WITH VEGETABLES

2 lb. stew meat (beef, veal, or lamb)	1 onion, minced
2 onions, chopped	4 stalks celery (cut in 1-in. pieces)
2 cups tomato purée (or canned tomatoes)	1 green pepper, diced
2 cups boiling water	3 carrots, sliced
2 bay leaves	4 potatoes, quartered
	$\frac{1}{4}$ tsp. pepper
	$\frac{1}{2}$ tsp. salt

Have meat cut into inch cubes. Roll in flour, seasoned with 2 teaspoons salt and a dash of pepper, and brown in 2 tablespoons hot lard with the chopped onions. Mix the tomato purée with boiling water, heat, and pour over meat and onion. Add

bay leaves and simmer 1 hour. Add minced onion, celery, green pepper, carrots, potatoes, pepper, and salt. Simmer until all ingredients are done—about 1 hour. Liquid may be thickened with flour for gravy. Serves 6–8.

SMOTHERED PORK CHOPS

6 pork chops, 1 inch thick	3 tbsp. flour
$\frac{1}{4}$ tsp. salt	2 cups hot water
$\frac{1}{4}$ tsp. sage	1 tbsp. vinegar
3 tart apples, cored	$\frac{1}{2}$ tsp. salt
3 tbsp. molasses	$\frac{1}{3}$ cup raisins

Sprinkle chops with $\frac{1}{4}$ teaspoon salt and sage. Sear slowly in hot skillet, browning on both sides. Place in large baking dish. Slice apples in $\frac{1}{4}$ -inch slices or rings and arrange on chops. Pour molasses over them. Add flour to fat in skillet and cook until brown, stirring constantly. Add water and stir until mixture boils. Add vinegar, salt, and raisins. Pour this sauce over chops and apples. Cover and bake in moderate oven (350° F.) about 1 hour, or until apples are tender. Serves 6.

CASSEROLE VEAL OR LAMB STEW

Cut 1 $\frac{1}{2}$ lb. veal- or lamb-stew meat (breast, neck, or shoulder) into about 6 pieces. Season with 1 $\frac{1}{2}$ teaspoons salt, roll in flour, and brown in hot lard. Add about 2 cups hot water. Put in casserole and cook slowly, covered, for one hour. Add 6 medium, peeled potatoes, 6 carrots, and 6 onions. Add more water if needed and another teaspoon of salt. Cook slowly for another hour. Serve in casserole. Serves 4–6.

CASSEROLE OF STEAK AND KIDNEY

$\frac{1}{2}$ lb. lean steak	1 scraped carrot
$\frac{1}{2}$ lb. kidneys	2 tbsp. bacon fat
1 peeled onion	3 tbsp. seasoned flour

Cut steak into slices. Split the kidneys, remove the cores, and let soak in cold water 1 hour. Drain, and cut into inch dice.

Dip steak and kidneys in seasoned flour. Melt bacon fat in a frying pan, put in steak and kidneys, and brown. Place in a casserole. Add chopped onion and grated carrot. Add water to cover. Cook in a slow oven (300° F.) 2 hours. Serves 4-6.

LAMBS' TONGUES WITH CAPER SAUCE

6 lambs' tongues
Salt and pepper
Small bay leaf

Put tongues in cold water, bring to boil, cook $\frac{1}{2}$ hour, and drain off water; start cooking again in cold water and cook until tender, $\frac{1}{2}$ -1 $\frac{1}{2}$ hours more. Skin and remove roots. Serve with caper (or pickle) sauce made from 2 cups white sauce to which 2 tablespoons capers or chopped pickles have been added. Serves 6.

BAKED FILLET OF FISH WITH SPINACH STUFFING

$\frac{3}{4}$ cup rice	1 tsp. salt
1 lb. cooked spinach	$\frac{1}{4}$ cup catsup
2 tsp. grated onion	1 $\frac{1}{2}$ lb. fish (2 fillets of haddock,
2 tbsp. melted butter or	cod, or flounder)
margarine	$\frac{1}{2}$ cup buttered bread crumbs

Wash rice, cook in boiling salted water about 15 minutes and drain. Combine rice, drained chopped spinach, onion, butter, salt, and catsup; mix with fork. Place one fillet in a greased baking pan, season with salt and pepper. Cover with the spinach stuffing, keeping edges as even as possible. Top with the second fillet and sprinkle with buttered crumbs. Bake in a hot oven (400° F.) for 25 minutes. Serves 6.

SAVORY MEAT LOAF

1 $\frac{1}{2}$ tbsp. diced salt pork	2 $\frac{1}{2}$ tsp. salt
2 tbsp. minced onion	$\frac{1}{4}$ tsp. pepper
2 lb. round beef, ground	2 cups strained canned toma-
$\frac{1}{2}$ cup minute tapioca	toes (juice and pulp)

Fry out salt pork, add onion, and cook until golden brown. Add pork, onion, and drippings to other ingredients and mix thoroughly. Bake in loaf pan in hot oven (450° F.) 15 minutes; then decrease heat to moderate (350° F.) and bake 30 minutes longer, or until done. Serve hot or cold. Garnish with parsley. Serves 7-9.

GELATINE MEAT LOAF

1 envelope or 1 scant tbsp. plain gelatine	$\frac{1}{2}$ tsp. salt
$\frac{1}{2}$ cup cold water	1 tsp. finely chopped parsley (if desired)
1 cup stock, well seasoned	1 cup cooked meat, chopped
$\frac{1}{2}$ onion, peeled and sliced	(veal, lamb, chicken, beef, ham, pork, etc.)
1 stalk celery, chopped	$\frac{1}{2}$ cup chopped celery
1 tbsp. lemon juice	

Soften gelatine in cold water. Add onion, stalk of celery, and salt to stock or consommé and boil 3 minutes. Strain. Add softened gelatine and stir until dissolved. Add lemon juice and cool. When mixture begins to thicken, fold in diced meat, celery, and parsley. Turn into loaf pan which has been rinsed out in cold water first and chill. When firm, unmold onto platter. Garnish with lettuce, watercress, or desired salad greens, and serve with mayonnaise. Slice to serve. Serves 4-6.

BAKED RICE AND MEAT

2 cups cold cooked meat (chicken, beef, veal, or lamb), cubed	Salt and pepper
2 cups meat stock	$\frac{1}{2}$ cup rice
1 cup tomatoes, stewed	2 tbsp. butter (or other fat)
	1 tbsp. Worcestershire sauce
	2 medium-sized onions, cut fine

Simmer the meat, stock, tomatoes, one of the onions, Worcestershire sauce, and seasonings together for about 10 minutes. Melt the butter in a frying pan and add other onion and uncooked rice. Allow both to brown slightly and add them to the other mixture. Turn all into a buttered casserole and bake in slow oven (325° F.) about 40 minutes. Serves 5-6.

SWEET POTATOES WITH HAM

Cut meat from ham (or ham hocks) into cubes (about 2 cups) and line bottom of a well-greased, shallow, baking dish with it. Pile 4 cups of mashed and seasoned sweet potatoes lightly over ham. Bake in a moderate oven (350° F.) about 45 minutes. Serves 6.

SHEPHERD'S PIE

Grease a baking dish; cover the bottom with mashed potatoes. Add a layer of cooked minced meat or fish seasoned well and mixed with meat or fish stock or gravy. Cover with mashed potatoes. Bake long enough to heat through and brown, 20–30 minutes in a moderately hot oven (400° F.). Three cups mashed potatoes and 1½ cups meat or fish will serve 4.

TAMALE PIE

1 cup corn meal	1 lb. Hamburg steak
2½ tsp. salt	2 cups tomatoes
5 cups boiling water	½ tsp. cayenne pepper, or 1
1 onion, chopped	small, chopped, sweet pepper
1 tbs. fat	per

Make a mush by stirring the corn meal and 1½ teaspoons salt into the boiling water. Cook in a double boiler or over water for 45 minutes. Brown the onion in the fat, add the Hamburg steak, and stir until the red color disappears. Add the tomato, pepper, and remaining salt and simmer 5–10 minutes. Grease a baking dish, pour in half of the corn-meal mush, add the meat, and cover with remaining mush. Bake in moderate oven (350° F.) 30 minutes. Serves 5–6.

SPAGHETTI NEAPOLITAN STYLE

1 onion	1 cup meat broth
2 garlic cloves, minced	1 cup tomato juice
2 tbs. olive oil	Salt and pepper
3 tbs. minced ham	Cooked spaghetti
2 slices spiced sausage	Grated Parmesan cheese
6 mushrooms, chopped	

Fry onion and garlic in oil until golden. Add ham, sausage, and mushrooms and continue frying. Add broth and tomato juice and season with salt and pepper. Cover closely and simmer until all ingredients are blended. Pile spaghetti on a hot platter, pour sauce in the middle, and sprinkle with cheese. Serves 4.

STUFFED CABBAGE

1 medium-sized cabbage (2 lb.)	$\frac{1}{2}$ cup bread crumbs
	$\frac{1}{2}$ cup milk
1 lb. beef	1 egg
1 slice bacon or salt pork	Seasoning
1 onion	1 green pepper

Select a solid cabbage (not too large), remove outside leaves, and cut out stalk end, leaving a hollow shell. Chop uncooked beef with bacon and onion. Add crumbs soaked in milk, beaten egg, salt, and pepper. Shape mixture into balls or cakes and arrange in cabbage. Arrange strips of sweet pepper on top of cabbage, tie in a cheesecloth, then boil until tender. Serve with tomato sauce. Serves 4-6.

STUFFED ONIONS

4 large Bermuda onions
$\frac{1}{2}$ cup sausage meat or corned-beef hash or ground cooked beef

Boil onions 40 minutes, or until almost tender. Remove from water, drain, and cool. Remove onion centers and add to meat. Fill cavities in onions with mixture. Cover with crumbs and grated cheese. Bake in moderate oven (350° F.) in a covered casserole 10 minutes, then uncover and bake 10 minutes more, or until tops of onions are browned. Serves 4.

STUFFED TURNIPS

Take four large, well-formed turnips. Peel them and hollow them out. Parboil 10 minutes and drain. Stuff them with $\frac{1}{2}$ pound

ground beef and 1 tablespoon chopped onion or $\frac{1}{2}$ pound sausage meat and onion. Put in a baking dish and add soup stock to a depth of one inch. Bake in a moderate oven (350° F.) until tender (about 40 minutes), basting often. Serves 4.

ORGAN MEATS

LIVER LOAF

1 lb. beef liver	1 tsp. salt
$\frac{1}{2}$ lb. fresh pork, chopped	$\frac{1}{4}$ tsp. pepper
1 cup bread crumbs	2 tbsp. tomato catsup or juice
1 onion	of half a lemon
1 egg, well beaten	Milk or water to moisten

Skin and cut liver in pieces, mix with onions and bread crumbs, and pass through a food chopper. Add milk, beaten egg, and seasonings, mixing thoroughly. Mold and bake in a slow oven (300° F.) about 2 hours. Top with bacon strips before baking, if desired. Serves 4-6.

TOMATOES STUFFED WITH LIVER

Cut a thin slice from the stem end of 6 medium-sized tomatoes. Take out seeds and pulp, saving the pulp, sprinkle inside of tomatoes with salt, invert, and let stand $\frac{1}{2}$ hour. Parboil 1 pound skinned liver and grind. Season with 2 tablespoons finely chopped onion, 1 teaspoon salt, and $\frac{1}{8}$ teaspoon pepper. Add pulp from tomatoes. Stuff tomatoes with this mixture. Cover with buttered crumbs and small strips of bacon. Bake in a moderate oven (350° F.) about 30 minutes. Serves 5-6.

KIDNEY SAUTÉ

4 veal or 8 lamb kidneys	1 small onion, minced
$\frac{1}{4}$ cup flour	1 cup brown sauce (sauce
1 tsp. salt	made with butter, browned
$\frac{1}{4}$ tsp. pepper	flour, and meat stock)
2 tbsp. fat	1 tbsp. lemon juice

Wash kidneys and split in halves lengthwise. Remove skin, cores, and tubes. Soak in cold, salted water. Slice in pieces $\frac{1}{4}$ inch thick and roll in seasoned flour. Melt fat over low heat. Add onion, cover, and fry slowly 5 minutes. Add floured kidney slices and brown on both sides. Combine sauce and lemon juice. Pour over kidneys. Cover and simmer for 15 minutes. Serve on buttered toast. Serves 4-5.

BRAISED BEEF HEART

Wash heart and remove hard parts. Brown 1 small onion, minced, in fat; add with 1 small minced green pepper to 2 cups cooked rice. Season with salt and pepper. Stuff the heart with this mixture. Put in casserole and pour tomato soup over it. Cover with bacon strips and cook in slow oven (325° F.) until tender, about $2\frac{1}{2}$ -3 hours. Serves 5-6.

CHEESE, LEGUME, AND NUT DISHES

CHEESE FONDUE

1 cup grated cheese	1 cup soft bread crumbs
2 tsp. fat	$\frac{1}{3}$ tsp. salt
1 cup milk	3 eggs

Cayenne

Scald the milk and pour it over the bread crumbs, then add the fat, the cheese, and seasonings. Beat the egg yolks slightly and add to the mixture, then fold in the stiffly beaten whites, and turn the mixture into a greased baking dish. Set in a pan of water and bake in a moderate oven (375° F.) until firm on top. Serves 4.

MINUTE RAREBIT

1 pt. milk	1 egg, well beaten
3 tbsp. minute tapioca	1 tsp. mustard
1 cup cheese	$\frac{1}{2}$ tsp. salt

Pepper or paprika to taste

Scald the milk in a double boiler and when hot add the minute tapioca and the cheese cut into small pieces. Stir constantly until the cheese is melted, add the well-beaten egg mixed with a little cold milk, then the mustard, salt, and pepper. May be poured over toast or put into greased baking dish and browned if desired. Serves 4-5.

BAKED HOMINY AND CHEESE

1 tbsp. butter substitute or drippings	$\frac{1}{2}$ -1 cup cheese, grated or cut fine
1 tbsp. cornstarch or 2 tbsp. flour	2 cups cooked (or canned) whole hominy
1 cup milk	$\frac{1}{4}$ cup bread crumbs
$\frac{1}{2}$ tsp. paprika	1 tsp. salt

Make a sauce of the fat, cornstarch, salt, and milk. Add the cheese and paprika to the sauce, arrange the hominy in baking dish, and pour the sauce over it. Cover with crumbs and bake 20 minutes in a moderate oven (350° F.). Serves 4-5.

CHEESE AND DANDELION ROLL

1 qt. cooked and chopped dandelion or other greens	1 tbsp. horse-radish
1 cup grated cheese	1 cup cooked hominy grits or rice
1 tbsp. butter	1 tsp. salt
2 tbsp. catsup	

Combine the ingredients and form the mixture into a roll. Place on a greased pan and bake in a moderate oven (350° F.) for 25 minutes. Remove to a hot platter and garnish with hard-cooked eggs. Serve with tomato sauce. Serves 8.

TOMATOES, CORN, AND COTTAGE CHEESE

1 12-oz. can sweet corn or 1 $\frac{1}{2}$ cups fresh corn	$\frac{1}{2}$ lb. cottage cheese
1 pt. canned or stewed tomatoes	1 tbsp. cracker crumbs
	1 tbsp. butter

Put in a buttered dish a layer of corn, layer of tomatoes, layer of cheese, and repeat. Sprinkle cracker crumbs over the top, dot with butter, and bake for 30 minutes in a moderate oven (350° F.). Serves 4.

RICE AND WALNUT LOAF

1 egg	1½ cups cooked rice
½ cup milk	1 cup chopped walnuts
1 cup soft bread crumbs	½ tsp. sage
½ cup chili sauce	1 tsp. salt
	⅓ tsp. pepper

Beat egg and add other ingredients in order named. Blend thoroughly and put in a greased loaf pan. Bake in a moderate oven (375° F.) for 45 minutes. Serve with a well-seasoned tomato sauce. Serves 6.

PEANUT AND CARROT LOAF

2 cups roasted peanuts, chopped	1½ cups cooked tomato juice and pulp
2 cups chopped carrots	1 cup dry bread crumbs
2 tbsp. butter or other fat	¼ cup finely chopped parsley
3 tbsp. flour	2½ tsp. salt
1 egg (may be omitted)	⅓ tsp. pepper

Make a thick sauce with the fat, flour, beaten egg, and tomatoes, mix well with the other ingredients, and form into a loaf. Pack tightly in a well-greased loaf pan lined with paper and bake in a moderately hot oven (375°–400° F.) for 1 hour or longer. Serves 8–10.

PEANUT SCRAPPLE

1 cup hot milk	1¼ tsp. salt
1 qt. boiling water	⅓ tsp. paprika
1 cup yellow corn meal	1½ cups peanuts, chopped fine
¾ cup hominy grits	½ cup grated cheese

Combine hot milk and boiling water. Bring to boiling-point and gradually add corn meal, hominy grits, and seasoning. Stir

constantly until the liquid is thickened by the cereal. Place in a double boiler and cook one hour. Ten minutes before end of cooking period add peanuts and cheese. Pour into a deep, rectangular bread pan and allow to cool. When ready to use, cut in small thin slices and fry in deep fat (375–90° F.) or greased frying pan until brown. Or place in greased baking pan, sprinkle with grated cheese and bread crumbs, and bake in a moderate oven (375° F.) until brown. Serve with syrup. Serves 8–10.

SOYBEAN CASSEROLE

2 cups cooked soybeans, chopped	2 tbsp. chopped green pepper
$\frac{1}{4}$ cup diced salt pork	6 tbsp. flour
2 cups chopped celery	2 cups milk
2 tbsp. chopped onions	1 tbsp. salt
	1 cup buttered bread crumbs

Brown the salt pork in a frying pan. Add the celery, onion, and green pepper, and sauté for about 5 minutes. Add thickening made from the flour, milk, and salt and stir until mixture reaches the boiling-point. Stir in the cooked beans and pour the mixture into a greased baking dish. Cover with the buttered bread crumbs. Bake in a moderate oven (350° F.) for 30 minutes, or until the crumbs are brown. Serves 5–7.

CHILE CON CARNE WITH SOYBEANS

2 cups cooked soybeans	$\frac{1}{2}$ lb. lean beef, ground
$\frac{1}{4}$ lb. salt pork, diced	2 cups tomatoes (canned or fresh)
$\frac{1}{4}$ cup chopped onions	
	1 tbsp. chile powder

Fry the salt pork until crisp. Remove the pork and brown the onions. Add the beef, stir, and cook slowly for 5 minutes. Then add the crisped pork and the remaining ingredients and heat to boiling. Serves 4–6.

LIMA BEAN AND MUSHROOM LOAF

1 4-oz. can sliced mushrooms	1 tsp. Worcestershire sauce
$\frac{1}{2}$ cup diced celery	1 No. 2 can lima beans, or $2\frac{1}{2}$
2 tbsp. butter	cups fresh limas (cooked)
3 tbsp. flour	$\frac{1}{4}$ cup diced pimientos
$\frac{1}{2}$ tsp. salt	3 hard-cooked eggs
Dash pepper	1 cup dry bread crumbs

Drain the liquid from the mushrooms, saving it for the sauce, and brown the mushrooms and celery in butter; stir in the flour and allow it to brown lightly. Add seasonings and the liquid from the mushrooms and beans; cook until thickened, stirring constantly. Combine with the mushrooms, beans, bread crumbs, and pimientos. Cut up the eggs and add to the mixture. Put into greased baking dish or loaf pan and top with buttered coarse crumbs. Bake in a moderate oven (375° F.) from 30-45 minutes. Serves about 6.

CASSEROLE OF DRIED LIMA BEANS

6 cups cooked dried lima	$\frac{1}{8}$ tsp. pepper
beans	$\frac{1}{2}$ tsp. dry mustard
1 tsp. salt	1 cup sour cream
$\frac{1}{4}$ cup brown sugar	4 slices bacon

Arrange limas in greased baking dish. Add seasonings and sour cream. Cover, bake in moderate oven (350° F.) 2 hours; top with bacon last hour. (Old southern recipe.) Serves 6-8.

VEGETABLES

SCALLOPED OR BAKED POTATOES WITH CHEESE

Arrange a layer of sliced raw or boiled potatoes in greased baking dish and sprinkle with grated cheese and a little flour. Repeat until dish is nearly full. Pour milk over the whole, about one half cup to every three potatoes. Skim milk is good. Bake

in a moderate oven (350° F.) until done. The length of time required depends upon whether the potatoes are raw or boiled and whether the baking dish is deep or shallow. Boiled potatoes baked in a shallow dish will take only 20 minutes. Raw potatoes in a deep dish may take as much as 1½ hours.

Baked potatoes may be scooped out, mashed, and mixed with grated cheese (½ cup cheese to pulp of 6 large potatoes), refilled in shells, and baked in a moderate oven (400° F.) 15 minutes. Allow 1 good-sized potato for each serving.

APPLE SWEET POTATOES

2 tart apples	½ cup chopped nuts
4 good-sized sweet potatoes	4 tbsp. butter
½ cup grated maple sugar or brown sugar	½ cup buttered bread crumbs

Peel and slice the apples and sweet potatoes that have been baked or boiled in skins and then skinned. Arrange in alternate layers in a buttered baking dish, sprinkling the apples very lightly with the sugar and chopped nuts and dotting the potatoes liberally with butter. Cover the top with buttered crumbs. Cover and bake in a rather hot oven (400° F.) for ¾ hour or until the apples are tender. Remove cover and brown. This is delicious served with broiled bacon. Serves 6.

SWEET POTATOES IN ORANGE SHELLS

8 oranges	2 tsp. salt
4 cups boiled or baked sweet potatoes	2 tbsp. melted butter
	8 marshmallows

Cut off tops of oranges and remove pulp and juice with a sharp knife and spoon. Whip sweet potatoes with salt, butter, and orange juice to moisten to desired consistency. Use juice secured in preparing shells. Fill orange shells and top each with a marshmallow. Brown in moderate oven (350° F.) until heated through. Serves 8.

SCALLOPED CAULIFLOWER AND TOMATOES

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|--|---|
| 1 medium-sized head cauliflower, cooked slightly | with 1 tsp. of Worcestershire sauce added |
| 3 medium-sized tomatoes | $\frac{1}{2}$ cup bread crumbs |
| $1\frac{1}{2}$ cups thick white sauce, | $\frac{1}{4}$ cup grated cheese |

Put layer of cooked cauliflower in greased casserole, cover with layer of tomatoes, and pour in half the white sauce. Repeat. Mix crumbs with grated cheese and spread on top. Bake in a moderate oven 30–45 minutes, or until cauliflower is tender. Serves 4.

SCALLOPED CARROTS AND ONIONS

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| 6 medium-sized carrots, scraped and sliced crosswise | $\frac{1}{4}$ tsp. salt
$\frac{1}{8}$ tsp. pepper
2 tbsp. butter |
| 6 medium-sized raw onions, peeled and sliced | 1 cup medium white sauce
$\frac{1}{4}$ cup grated cheese |

Arrange vegetables in a greased casserole, seasoning each layer, moistening with white sauce, and dotting with butter. Cover and bake in moderately slow oven (325° F.) for 45 minutes. Remove, sprinkle with grated cheese, and return to oven 15 minutes. Serves 4–6.

SCALLOPED CABBAGE

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|---------------------------------|--------------------------------|
| $\frac{1}{2}$ head cabbage | $\frac{1}{4}$ tsp. pepper |
| $1\frac{1}{2}$ cups white sauce | $\frac{1}{2}$ cup bread crumbs |
| 1 tsp. salt | |

Chop cabbage coarsely, put in a saucepan, and barely cover with boiling water. Cook uncovered until just tender, or for 6 or 7 minutes and drain. Into a greased baking dish put a layer of well-seasoned cabbage, a layer white sauce, and continue making layers until all the ingredients are used. Put buttered bread crumbs over the mixture. Bake in a moderate oven (375° F.) until the mixture is bubbling hot. Then remove cover and brown. Serves 4.

CELERY CREOLE STYLE

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| 1½ cups diced celery | 3 tsp. finely chopped green |
| 3 tbsp. finely chopped onion | pepper |
| 1½ tbsp. butter | ½ cup canned tomatoes |
| | ½ tsp. salt |

Put celery in saucepan with ½ cup of boiling water, cover tightly, and cook until tender, adding a little more water if necessary to keep from burning. Melt butter, brown chopped onion and peppers in it, add tomatoes and salt, heat, and pour this mixture over cooked celery. Serves 4.

SMOTHERED ZUCCHINI

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|--------------------------------------|-----------------------------------|
| 2 cups zucchini (cut in ¾-in. dices) | 1 small tomato, peeled and sliced |
| 2 tbsp. butter | 3 tbsp. beef broth |
| 1 stalk celery, sliced thin | Salt and pepper |

Fry zucchini in butter for a few moments until partly browned. Add remaining ingredients, cover closely, reduce heat, and simmer until tender. Serves 4.

CRISP CABBAGE

Select a young, tender head of cabbage, separate and wash, cut out all coarse stalk part of leaves, and shred the remainder. Cook with butter (¾ cube to 1 good-sized cabbage) in iron skillet, tightly covered. After it starts to cook, cook 5-6 minutes, stirring occasionally. Serve immediately. Serves 4.

WILTED LETTUCE AND BACON

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| ¼ lb. bacon, chopped fine | 1 tsp. sugar |
| 4 tbsp. vinegar | Dash of pepper |
| ½ tsp. salt | 2 heads lettuce, shredded |

Fry bacon golden brown and remove from pan, keeping it warm. To the bacon fat add all seasonings and, when boiling

hot, pour it over the lettuce in another cooking pan. Mix well, cover, let steam 5 minutes, sprinkle fried bacon over lettuce, and serve piping hot. Serves 4-6.

GLAZED CARROTS OR WINTER SQUASH

1 bunch carrots or medium-	3 tbsp. molasses
sized squash	1½ tsp. hot water
¼ tsp. salt	3 tbsp. butter

Scrape carrots and parboil them. Place in a greased baking dish and dust with salt. Cover with molasses and water and dot with butter. Place under broiler until brown.

Cut squash in 2-inch squares. Place in greased baking dish and dust with salt. Cover with molasses, water, and butter. Bake in moderate oven (350° F.) 30 minutes to 1 hour, depending on size and kind of squash. Baste often. Serves 4.

SAUCES FOR VEGETABLES

CHEESE SAUCE

⅓ cup milk
 ½ lb. American cheddar
 cheese
 Salt and pepper

Combine milk and grated or finely shaved cheese in a double boiler and heat over hot water, stirring occasionally, until cheese is melted. Season and pour over hot cooked vegetables, such as spinach, broccoli, asparagus, string beans, or broiled tomatoes. Cheese may be combined with white sauce, if preferred. Serves 4.

PEANUT BUTTER SAUCE

1 tbsp. drippings or vegetable oil	1½ cups meat or vegetable stock or milk
2 tbsp. peanut butter	½ tsp. salt
2 tbsp. flour	Few grains pepper

132 GOOD NUTRITION FOR EVERYBODY

Brown the fat, add the peanut butter, and, when well mixed, add flour and continue browning. Pour in the milk or stock gradually, stirring constantly. Bring to the boiling-point and add salt and pepper. Pour over broccoli, cauliflower, string beans, or other green vegetables. Serves 4.

ITALIAN TOMATO SAUCE

$\frac{1}{2}$ cup finely cut onion	2 cups cooked or canned to-
$\frac{1}{2}$ cup grated or cut carrot	matoes
$\frac{1}{2}$ cup cut green peppers	2 tsp. salt
4 tbsp. butter substitute or	2 tbsp. flour
vegetable fat or drippings	

Slowly cook the vegetables, except tomato, in the fat until tender. Add tomato and salt and cook 5 minutes. Put through strainer, return to fire, add the flour mixed with 2 tablespoons cold water and boil 5 minutes. Good with bland vegetables. Serves 4-5.

SALADS

ALL-IN-ONE SALAD

1 head lettuce	$\frac{1}{2}$ cup mustard pickle
1 (No. 2) can string beans, drained	1 peeled garlic bud, finely minced
3 tomatoes	$\frac{3}{4}$ cup salad oil
2 cups diced, cooked potatoes	$\frac{1}{4}$ cup vinegar
1 (7 oz.) can flaked fish	$\frac{1}{4}$ tsp. sugar
1 peeled purple onion, sliced	$\frac{3}{4}$ tsp. salt
3 shelled hard-cooked eggs, sliced	Few grains pepper

Break up the thoroughly washed lettuce and arrange in the salad bowl. Arrange alternate layers of the string beans, tomatoes cut in eighths, the potatoes, fish, onion, and eggs. Thor-

oughly but lightly toss the salad with a dressing made by beating together the remaining ingredients with a fork. Serves 6.

CHEF'S SALAD BOWL

$\frac{1}{2}$ Spanish onion	2 cups cooked or canned green
2 tomatoes	peas
1 small head chicory	French dressing
$\frac{2}{3}$ cup slivered tongue or ham	

Slice onion, separate into rings. Cut tomatoes in thin wedges. Break endive into small sprays. Combine all ingredients in salad bowl; toss lightly until ingredients glisten with dressing. Serves 4.

SWISS SALAD

1 bunch watercress	1 small cucumber, sliced
$\frac{1}{2}$ green pepper, chopped	12 radishes
$\frac{1}{2}$ cup grated Swiss cheese	

Wash and pick over watercress. Dry thoroughly. Place watercress in refrigerator until cold and crisp. Just before serving time place watercress in large salad bowl. Add chopped green pepper, cucumber, pared and sliced thin, and thinly sliced radishes. Add French dressing, tossing salad lightly in bowl with salad spoon and fork until thoroughly moistened. Grate Swiss cheese over top of salad, using a large grater so that cheese forms into long thin strips. Serve at once in same bowl. Serves 4.

SPRING GARDEN SALAD BOWL

10 radishes	$\frac{1}{2}$ cup chopped celery
2 cucumbers, uniform size	1 bunch watercress
$\frac{1}{3}$ cup sliced green onions	French dressing

Slice radishes; peel, score, and slice cucumbers and combine with green onions and celery. Serve on watercress with French dressing in a salad bowl. Serves 4.

MIXED GREENS AND ROQUEFORT CHEESE

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| 1 cup shredded lettuce | 1 cup chopped celery |
| 1 cup chicory, coarsely
chopped | 2 tbsp. grated raw carrot |
| 4 tbsp. Roquefort cheese,
crumbled | $\frac{1}{2}$ cup broken grapefruit seg-
ments |
| | 1 tbsp. ground sweet pepper |

Blend ingredients, which have been drained and chilled, and place in salad bowl. Serve with dressing given below. Serves 4-6.

DRESSING

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| $\frac{1}{2}$ cup salad oil | 1 tsp. sugar |
| 2 tbsp. lemon or grapefruit
juice | $\frac{1}{8}$ tsp. cayenne |
| 1 tsp. salt | $\frac{1}{4}$ lb. Roquefort cheese |

Mix all dressing ingredients together and pour over salad just before serving. Toss lightly.

GRAPEFRUIT GREEN SALAD

In a big bowl mix torn leaves of medium-sized head lettuce, $\frac{1}{2}$ head chicory, and $\frac{1}{2}$ head romaine or $\frac{1}{2}$ bunch watercress. Add $\frac{1}{2}$ cup each diced celery, sliced radishes, and grapefruit segments, and sprinkle with $\frac{1}{2}$ teaspoon celery seed and with 1 tablespoon chopped chives or green onions. Diced avocado also may be added. Dress with French dressing made with grapefruit or lemon juice, with a little catsup added. Toss and serve. Serves 6-8.

BROCCOLI AND TOMATO SALAD

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| 4 stalks of broccoli, chopped | Mayonnaise |
| 2 large tomatoes | $1\frac{1}{2}$ tsp. salt |
| $\frac{1}{3}$ cup salad oil | $\frac{1}{2}$ tsp. freshly ground pepper |
| 1 tbsp. lemon juice | |

Peel and cut tomatoes in small pieces. Place in a salad bowl. Add broccoli. Mix in French dressing made from oil, lemon juice, and seasonings and chill. Mix with mayonnaise before serving. Serves 4-6.

CELERY ROOT AND STRING BEAN SALAD

3 medium-sized celery roots	$\frac{1}{2}$ head of lettuce, cut up
$\frac{1}{2}$ lb. green beans	1 tbsp. cut-up chives (may be omitted)
$\frac{1}{2}$ tsp. salt	
$\frac{1}{4}$ tsp. freshly ground black pepper	1 tsp. Worcestershire sauce in $\frac{3}{4}$ cup of mayonnaise

Place cooked and diced celery root and string beans in chilled salad bowl. Add seasoning, lettuce, chives, mayonnaise, and mix. Asparagus tips may be used in place of string beans. Serves 4-6.

JULIENNE SALAD

1 small head of cabbage, finely shredded	1 green pepper, shredded (may be omitted)
1 large raw carrot, shredded	1 cup celery, cut into long, slender strips
3 tart red apples, diced	

The vegetables should be cool and crisp. Mix lightly with salad dressing (French or mayonnaise). Serve at once. Serves 8.

RAISIN CARROT SALAD

$\frac{1}{2}$ cup seedless raisins	$\frac{1}{2}$ cup chopped walnuts or peanuts
$1\frac{1}{2}$ cups raw carrots, chopped fine	$\frac{1}{4}$ tsp. salt
$\frac{1}{2}$ cup finely diced celery	Dash cayenne
	4 tbsp. mayonnaise

Wash raisins and combine with carrots, celery, nuts, salt, cayenne, and mayonnaise. Chill and serve on lettuce. Serves 6.

DRIED FRUIT AND RAW CABBAGE SALAD

Mix shredded raw cabbage, diced apple, and either raisins, prunes, or dried apricots, soaked and chopped fine. Serve with French dressing or lemon juice on a bed of greens.

STUFFED PRUNE AND ORANGE SALAD

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| 8 large or medium-sized raw prunes | 2 stalks celery, chopped |
| | $\frac{1}{4}$ tsp. salt |
| 1 3-oz. package cream cheese | 2 oranges, peeled and sliced |

Soak prunes several hours, or until quite soft. Dry, slit, and remove pits. Mix cream cheese with a little milk or cream and the chopped celery. Fill prune cavities. Arrange orange slices on a bed of lettuce, top with stuffed prunes, and garnish with mayonnaise. Serves 4.

APRICOT AND BANANA SALAD

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| 2 cups lettuce leaves, shredded | 16 stewed or canned apricot halves |
| 1 cup sliced bananas | |

On each plate arrange a bed of lettuce and on it a layer of sliced, ripe bananas, topped by halves of apricot. Serve with boiled dressing. Serves 4.

EDEN SALAD

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| 1 cup dried figs | French dressing |
| 1 cup diced apples | Lettuce |
| $\frac{1}{2}$ cup diced celery | Mayonnaise |

Boil figs 5 minutes in water to cover, drain, and cut into strips. Combine figs, apple, and celery, and moisten with French dressing. Serve on lettuce with a garnish of mayonnaise. For a clean-cut appearance, slice figs with scissors. Serves 4.

WALDORF SALAD

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|---------------|----------------------|
| 4 apples | Mayonnaise |
| 2 cups celery | 1 cup broken walnuts |
| | Lettuce |

Wash the apples, pare, and cut into cubes. Clean celery and cut into thin strips. Mix apples, celery, and nuts thoroughly. Moisten with mayonnaise just before serving to bind together and arrange on crisp lettuce leaves. Serves 6.

CLUB FRUIT PLATE

6 oranges, peeled and sliced 3 cups melon or avocado balls
 3 bananas, cut in sixths 1 lb. (2 cups) cottage cheese
 Salad greens

Arrange fruits and cottage cheese on salad greens for individual servings. Serve with lemon French dressing. Serves 6.

FRESH FRUIT SALAD

$\frac{1}{2}$ cup each diced peaches, Lettuce
 orange, apple, celery, pine- Whipped cream or boiled
 apple, and banana dressing

Combine fruits and celery and moisten with a portion of the dressing. Chill and serve on lettuce, garnishing with remaining dressing. Serves 6.

JELLIED TOMATO SALAD

1 envelope, or 1 scant tbsp. $\frac{1}{2}$ tsp. salt
 plain gelatine Stalk celery
 $\frac{1}{4}$ cup cold water Few grains cayenne or pepper
 $1\frac{1}{2}$ cups fresh or canned toma- 1 tbsp. mild vinegar or lemon
 to juice or tomato cocktail juice
 $\frac{1}{2}$ bay leaf (if desired) 1 tbsp. onion juice

Mix tomatoes, bay leaf, salt, celery, and cayenne or pepper and simmer 10 minutes. Soften gelatine in cold water. Add to hot mixture and stir until dissolved. Add vinegar and onion juice (extracted by grating onion). Strain and turn into molds that have been rinsed in cold water and chill. When firm, unmold on lettuce and garnish with mayonnaise. Serves 6.

BANQUET SALAD

1 envelope, or 1 scant tbsp., $\frac{1}{4}$ cup mild vinegar
 plain gelatine 1 cup cottage cheese
 $\frac{1}{4}$ cup cold water $\frac{1}{4}$ cup stuffed olives, chopped
 1 cup hot water $\frac{1}{2}$ cup celery, chopped
 $\frac{1}{2}$ tsp. salt $\frac{1}{4}$ cup green pepper, chopped

Soften gelatine in cold water. Add hot water and stir until dissolved. Add salt and vinegar. Cool. When mixture begins to thicken, fold in cheese, olives, celery, and pepper. One-half cup evaporated milk, whipped, may be used instead of cottage cheese. Turn into individual molds or large mold that has been rinsed in cold water and chill. When firm, unmold on lettuce and serve with mayonnaise. Serves 6.

BOILED DRESSING

$\frac{3}{4}$ cup water	1 tsp. butter
1 tsp. mustard	1 tbsp. flour
$\frac{1}{2}$ tsp. salt	1 egg yolk
1 tbsp. sugar	$\frac{1}{4}$ cup vinegar

Mix dry ingredients. Add yolk of egg gradually, slightly beaten, then water and vinegar. Cook in a double boiler until mixture thickens.

QUICK BREADS

DROP BISCUITS

$4\frac{1}{2}$ tbsp. dried milk (whole or skim)	$\frac{3}{4}$ tsp. salt
2 cups of sifted all-purpose flour	3 tsp. baking powder
	4 tbsp. shortening
	1 cup water

Sift flour, milk powder, salt, and baking powder together. Cut in fat. Add water slowly, stirring from the center until a soft dough is formed. Drop from a spoon onto a greased baking sheet and bake in a hot oven (450° F.) for 15 minutes. Makes 12 medium-sized biscuits.

WHEAT-GERM BISCUITS

1 cup all-purpose flour	$\frac{1}{2}$ tsp. salt
1 cup wheat germ	4 tbsp. shortening
4 tsp. baking powder	$\frac{2}{3}$ cup milk

Sift dry ingredients, cut in shortening, add milk, and stir until soft dough is formed. Turn out on floured board, knead quickly and lightly, and roll to one-half the thickness desired in the biscuit. Cut, place on buttered pan, and bake in hot oven (450° F.) for 12 minutes. Makes 12 medium-sized biscuits.

PEANUT BUTTER BISCUITS

2 cups sifted flour	4 tbsp. peanut butter
$\frac{3}{4}$ tsp. salt	2 tbsp. fat
4 tsp. baking powder	Milk

Sift the dry ingredients and rub the peanut butter and fat into the flour with the tips of the fingers. Make a well in this dry mixture and, stirring from the center, slowly add enough milk to make a soft dough. Knead slightly, pat to about $\frac{1}{2}$ -inch thickness on a lightly floured board, and cut in rounds. Bake in a hot oven (400° F.) for about 15 minutes, or until lightly browned. Makes 12 medium-sized biscuits.

GRAHAM MUFFINS

$\frac{1}{2}$ cup all-purpose flour	1 egg, beaten
$\frac{3}{4}$ tsp. soda	$\frac{3}{4}$ cup milk
$\frac{1}{3}$ cup molasses or dark corn syrup	1 tbsp. lemon juice
	1 tbsp. melted fat
$1\frac{1}{2}$ cups graham flour	$\frac{3}{4}$ cup raisins, chopped

Sift flour with soda. Mix with molasses (or corn syrup) and then stir in graham flour. Combine egg, milk, and lemon juice and stir quickly into flour mixture. Add melted fat, then fold in raisins. Fill greased muffin tins $\frac{2}{3}$ full of mixture and bake in moderate oven (350° F.) for 25–30 minutes. Makes 12 muffins.

OATMEAL MUFFINS

$1\frac{1}{2}$ cups milk	1 tbsp. melted fat
2 cups rolled oats	1 cup all-purpose flour
1 egg	4 tsp. baking powder
2 tbsp. molasses	$\frac{3}{4}$ tsp. salt

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Pour hot milk over the oats and let soak about $\frac{1}{2}$ hour. Add the beaten egg, molasses, and melted fat. Finally add dry ingredients, which have been sifted together. Bake in greased muffin tins $\frac{1}{2}$ hour in a moderately hot oven. Use small tins so muffins will be crusty on all sides. Makes 12 (or more) small muffins.

SOYBEAN FLOUR MUFFINS

1 cup sifted soybean flour	2 tbsp. sugar
1 cup white or whole-wheat flour	2 tsp. baking powder
	$\frac{3}{4}$ cup milk
1 tsp. salt	1 egg, beaten
1 tbsp. melted fat	

Sift the dry ingredients together. Mix the milk and beaten egg, add the melted fat, pour into the dry ingredients, and stir until they are just moistened. Pour into greased muffin pans and bake in a hot oven (425° F.) for 20–25 minutes. Makes 12 medium-sized muffins.

WHEAT-GERM MUFFINS

1 cup all-purpose flour	$\frac{1}{2}$ tsp. salt
1 cup wheat germ	1 egg
2 tbsp. sugar	1 cup milk
4 tsp. baking powder	3 tbsp. melted shortening

Mix and sift flour, salt, sugar, and baking powder, add wheat germ, beaten egg, milk, and melted fat. Mix quickly, stirring only enough to mix ingredients. Fill well-greased muffin pans two-thirds full and bake in moderately hot oven (400° F.) for 20–25 minutes. Makes 12 medium-sized muffins.

CORN MUFFINS

1 $\frac{1}{2}$ cups corn meal	1 tbsp. flour
4 tsp. baking powder	2 cups milk
1 tsp. salt	1 egg (may be omitted)
1 tbsp. melted fat	

Mix and sift the dry ingredients. Combine the milk, beaten egg, and melted fat, and add to the dry ingredients. Mix well, pour into greased muffin tins, and bake in a hot oven from 20 to 25 minutes. This bread should be served hot. Makes 12 medium-sized muffins.

CORN MEAL CRISPS

(Salad Wafers)

$\frac{1}{2}$ cup corn meal	$\frac{1}{2}$ tsp. salt
$\frac{1}{2}$ cup flour	1 tbsp. fat
3 tbsp. milk	

Sift together dry ingredients. Cut the fat into the flour and add sufficient liquid to make a dough that can be rolled thin. Cut into diamond or other shapes. Bake in a quick oven until golden brown. Makes 60-65 wafers 2×2 inches.

OATMEAL CHEESE STICKS

$\frac{1}{2}$ cup milk (scalded)	1 tsp. sugar
$\frac{3}{4}$ cup oatmeal	$1\frac{1}{2}$ tsp. baking powder
1 cup all-purpose flour	2 tbsp. shortening
$\frac{1}{4}$ tsp. salt	$\frac{1}{4}$ cup grated cheese

Pour the scalded milk over the dry oatmeal and let stand for 10 minutes. Sift flour, salt, sugar, and baking powder together and cut in the shortening. Add cheese. Combine with the milk mixture. Turn out on a well-floured board and knead lightly for about $\frac{1}{2}$ minute. Roll dough into pencil-thin sticks about 4 inches long. Bake on greased cookie sheet in hot oven (425° F.) for 12-15 minutes. Serve with soup or salad. Makes 3 dozen.

OATMEAL GRIDDLE CAKES

1 cup milk	$1\frac{1}{2}$ cups cooked oatmeal
1 egg	$\frac{1}{2}$ cup all-purpose flour
1 tbsp. melted fat	$\frac{3}{4}$ tsp. salt
4 tsp. baking powder	

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Combine the milk, beaten egg, and melted fat. Beat this into the cooked oatmeal. Add the flour, salt, and baking powder, which have been sifted together. Bake on a hot, greased griddle. Makes 12-15 cakes, the number depending on size.

BREAD-CRUMB PANCAKES

1½ cups milk	1 egg
1 cup fine, dry bread crumbs	½ cup flour
2 tbsp. corn syrup (light)	2 tsp. baking powder
1 tbsp. melted butter	½ tsp. salt

Scald milk and pour over crumbs; let stand 15 minutes. Beat well. Add corn syrup, butter, and egg, slightly beaten. Add sifted dry ingredients and beat well. Bake on hot oiled griddle until brown, turning only once. Serve hot with butter and syrup. Makes 10-15 cakes.

GINGERBREAD

½ cup butter or other shortening	1 tsp. cinnamon
½ cup granulated sugar	1 tsp. ginger
1 egg, beaten	½ tsp. cloves
2½ cups sifted flour	½ tsp. salt
1½ tsp. soda	1 cup molasses
	1 cup hot water

Cream shortening and sugar. Add beaten egg. Measure and sift dry ingredients. Combine molasses and hot water. Add dry ingredients and liquid alternately to mixture of shortening and egg, a small amount at a time, and beat after each addition until smooth. Bake in paper-lined pan 9×9×2 in moderate oven (350° F.) for 45 minutes. Makes 16 servings.

SOUR-MILK GINGERBREAD

1 cup sour milk	2¼ cups flour
1¾ tsp. soda	2 tbsp. melted butter
1 cup molasses	2 tsp. ginger
	1 tsp. salt

Mix soda with sour milk and add to molasses. Sift together flour, ginger, and salt. Combine two mixtures gradually, and with beating. If desired, $\frac{1}{2}$ cup of chopped seedless raisins may be added to batter. Pour into greased baking pan and bake in moderate oven (350° F.) for about $\frac{1}{2}$ hour (may need longer if raisins are added). Makes 12-15 servings.

HONEY NUT BREAD

$\frac{1}{2}$ cup coarsely chopped nuts	1 egg, beaten
2 cups flour	$\frac{1}{2}$ cup honey
3 tsp. baking powder	$\frac{1}{2}$ cup milk
$\frac{1}{2}$ tsp. salt	2 tbsp. melted fat

Add the nuts to the sifted dry ingredients. Combine the beaten egg, honey, milk, and melted butter, and add to the first mixture. Stir until the dry ingredients are just moistened. Bake in a greased bread pan in a moderate oven (350° F.) for 45-50 minutes. Makes 1 loaf.

SOYBEAN NUT BREAD

1 cup sifted soybean flour	$\frac{1}{2}$ tsp. cinnamon
$1\frac{1}{2}$ cups sifted white flour	1 cup chopped nuts
2 tbsp. sugar	2 eggs
3 tsp. baking powder	1 cup milk
1 tsp. salt	4 tbsp. melted fat

Sift together the dry ingredients and add the nuts. Beat the eggs, add the milk and the fat, then add to the first mixture. Let the dough stand in a well-greased bread pan for 20 minutes. Bake in a moderate oven (350° F.) about 1 hour. Makes 1 loaf.

GRAHAM DATE BREAD

1 cup scalded milk	$\frac{1}{2}$ cake yeast
1 cup warm water	1 qt. graham flour
2 tsp. shortening	1 cup bread flour
2 tsp. salt	$1\frac{1}{2}$ cups chopped dates
4 tbsp. molasses	1 tbsp. powdered sugar
2 tbsp. cold milk	

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Pour scalded milk and water over the shortening, salt, and molasses. Let cool until lukewarm. Dissolve yeast in mixture. Mix graham and bread flours and beat into mixture. Cover, let rise double in bulk. Knead in dates. Put into 2 well-greased pans, cover, let rise 1 hour. Bake 1 hour in moderate oven (350° F.). Fifteen minutes before done rub tops of loaves with powdered sugar dissolved in cold milk. Makes 2 loaves.

COOKIES AND MACAROONS

DROP COOKIES

$\frac{1}{4}$ cup shortening	$2\frac{1}{4}$ cups sifted cake or pastry
1 cup granulated sugar	flour
1 egg	$\frac{1}{2}$ tsp. salt
1 cup chopped walnuts	$\frac{1}{4}$ tsp. soda
1 tsp. vanilla extract	$\frac{1}{3}$ cup sour milk

Cream shortening and add sugar gradually, creaming continually. Add the egg, well-beaten, and mix thoroughly. Add chopped nuts and vanilla and then the mixed and sifted flour, salt, and soda, alternately with the milk. Drop from a teaspoon on a greased cookie sheet 2 inches apart and bake in moderately hot oven (400° F.) for 10–12 minutes. Makes $3\frac{1}{2}$ dozen cookies.

CORN MEAL COOKIES

$\frac{1}{2}$ cup melted fat	6 tbsp. sour milk
$\frac{1}{2}$ cup molasses	$\frac{1}{2}$ tsp. soda
$\frac{1}{2}$ cup corn syrup	2 cups corn meal
1 egg	1 cup all-purpose flour

Combine the melted fat, molasses, syrup, beaten egg, and milk. Sift the dry ingredients and combine with the liquid. Drop from a teaspoon onto a greased pan and bake in a moderate oven (350° F.) for 15 minutes. This makes 55–60 cookies about 2 inches in diameter.

HONEY BRAN COOKIES

2 tbsp. butter	$\frac{1}{2}$ cup flour
$\frac{1}{2}$ cup honey	1 cup bran
2 eggs	$\frac{1}{8}$ tsp. powdered aniseed (may
$\frac{1}{4}$ – $\frac{1}{2}$ tsp. soda	be omitted)

Cream together the butter and honey; add the unbeaten eggs and beat the mixture together thoroughly. Sift together the flour, soda, and aniseed. Combine the two mixtures; drop from a teaspoon onto a buttered tin and bake in a moderate oven. Makes 20–24 cookies.

WHEAT-GERM COOKIES

1 cup all-purpose flour	1 egg
1 cup wheat germ	2 tbsp. milk
$\frac{3}{4}$ cup sugar	$\frac{1}{2}$ cup shortening
$1\frac{1}{2}$ tsp. baking powder	$\frac{1}{2}$ cup chopped nuts
	$\frac{1}{2}$ cup chopped raisins

Mix and sift flour, sugar, and baking powder. Add wheat germ, beaten egg, milk, and melted fat. Stir quickly and add nuts and raisins last. Drop on greased tin and bake in moderately hot oven (400° F.) for 20 minutes. Makes 20 large cookies.

CHOCOLATE-CHIP OATMEAL COOKIES

$\frac{3}{4}$ cup shortening	$1\frac{1}{8}$ cups (18 tbsp.) all-purpose
$\frac{1}{2}$ cup brown sugar (firmly	flour
packed)	$\frac{1}{3}$ cup milk
$\frac{1}{2}$ cup granulated sugar	1 tsp. vanilla
2 eggs	$\frac{1}{2}$ cup finely chopped nuts
1 tsp. baking powder	1 bar (7 oz.) semisweet choco-
$\frac{1}{4}$ tsp. salt	late
$\frac{3}{4}$ qt. uncooked oatmeal	

Cream shortening and sugars thoroughly and add beaten eggs. Sift flour, baking powder, and salt together, add to creamed mixture alternately with milk, and stir in vanilla. Add

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nuts, then oatmeal (gradually), and lastly the chocolate, which has been cut in pieces the size of a pea. Drop from teaspoon onto greased cookie sheet and bake in moderately hot oven (375° F.) for approximately 12 minutes. Makes 5 dozen cookies.

PEANUT COOKIES

2 tbsp. fat	2 tsp. baking powder
1 cup sugar	$\frac{1}{2}$ tsp. salt
2 eggs, well beaten	$\frac{1}{4}$ cup milk
2 cups all-purpose flour	1 cup chopped peanuts
$\frac{1}{2}$ tsp. lemon juice	

Cream the fat, add sugar gradually, add well-beaten egg. Mix and sift baking powder, salt, and flour; add to first mixture. Then add milk, peanuts, and lemon juice. Drop from tip of a spoon on a greased pan 1 inch apart. Place $\frac{1}{2}$ peanut on top of each. Bake 12–15 minutes in a very moderate oven (about 300°–325° F.). Makes 4 dozen cookies.

NUT MACAROONS

1 cup brown sugar	1 cup of pecan nuts, finely
1 egg white	chopped

Beat the white of egg until light; add the sugar gradually, while beating constantly. Fold in finely chopped nuts, sprinkled with salt. Drop from tip of spoon 1 inch apart on buttered sheet; bake in a moderate oven (350° F.) until delicately browned. Makes 15–18 macaroons.

SOYBEAN AND CORNFLAKE MACAROONS

1 cup cooked soybeans,	2 egg whites
mashed (and sieved, if de-	1 cup sugar
sired	2 cups cornflakes
$\frac{1}{8}$ tsp. salt	1 tsp. almond flavoring

Add the salt to the egg whites and beat until slightly stiff. Add the sugar, a tablespoon at a time, and beat until stiff.

Mix the soybean mash with the crushed cornflakes and gradually fold this mixture into the egg whites. Add the flavoring. Drop by spoonfuls on waxed paper and bake in a very moderate oven (300°–325° F.) for about 25–30 minutes, or until delicately brown and well set. Makes 2½ dozen macaroons.

OATMEAL MACAROONS

1 tbsp. fat	¼ tsp. salt
¾ cup corn syrup	½ tsp. baking powder
2 tbsp. sugar	1½ tbsp. flour
1 egg	2 tsp. almond extract, if desired
1½ cups oatmeal (uncooked)	

Combine the melted fat and the sugar and syrup, add the beaten egg, and stir in the other ingredients. Drop from a teaspoon on greased baking sheets or pans and bake in moderate oven (350° F.) about 15 minutes. Makes 25–28 cookies about 2 inches in diameter.

CAKES AND PIES

STANDARD ONE-EGG CAKE

2 cups sifted cake flour	1 cup sugar
2 tsp. baking powder	1 egg, unbeaten
¼ tsp. salt	¾ cup milk
⅓ cup butter or other shortening	1 tsp. vanilla

Sift flour once, measure, add baking powder and salt, and sift together three times. Cream butter, add sugar gradually, and cream together until light and fluffy. Add egg and beat very thoroughly. Add flour, alternately with milk, a small amount at a time, beating after each addition until smooth. Add vanilla. For cupcakes, bake in greased gem pans in hot oven (425° F.) for 15–18 minutes. Makes 18 cupcakes. For layer cake, bake in two 8-inch layer pans (greased) in moderate

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oven (375° F.) for 20–25 minutes. For loaf cake, bake in greased loaf pan in moderate oven (350° F.) for 45–50 minutes. Frost and decorate with nuts, if desired.

SUGARLESS CHOCOLATE FROSTING

2 squares (2 oz.) unsweetened chocolate	1 $\frac{1}{3}$ cups (15-oz. can) sweetened condensed milk
	1 tbsp. water

Melt chocolate in top of double boiler and add sweetened condensed milk. Heat over boiling water about 5 minutes or until it thickens, stirring constantly. Add water, stir, and spread on cold cake. Makes enough to frost a layer or loaf cake, or about 2 dozen cupcakes.

PEANUT BUTTER CUPCAKES

$\frac{1}{2}$ cup butter or other fat	3 cups sifted cake flour
$\frac{1}{2}$ cup peanut butter	4 tsp. baking powder
1 cup sugar	$\frac{1}{2}$ tsp. salt
2 eggs	1 cup milk
	1 tsp. vanilla

Cream together the fat, peanut butter, and sugar. Add the beaten eggs and the sifted dry ingredients alternately with the milk. Add the vanilla. Bake in greased muffin tins in a moderate oven (350° F.) for about 20 minutes. Makes 24–30 cupcakes.

SPICE CAKE

$\frac{1}{2}$ cup shortening	$\frac{3}{4}$ tsp. allspice
1 cup granulated sugar	$\frac{3}{4}$ tsp. ground cloves
1 egg, beaten	1 $\frac{1}{2}$ tsp. cinnamon
3 cups sifted cake or pastry flour	$\frac{1}{2}$ tsp. salt
1 $\frac{1}{2}$ tsp. baking soda	1 cup sour milk
	$\frac{1}{2}$ cup seeded raisins
$\frac{1}{2}$ cup chopped nuts	

Cream the shortening; add sugar gradually, creaming well. Add the egg and beat. Sift together $2\frac{3}{4}$ cups of the flour, the soda, allspice, cloves, cinnamon, and salt, and add alternately in thirds with the sour milk to the sugar mixture. Add raisins and nuts dredged with the remaining $\frac{1}{4}$ cup of flour and mix. Bake in a 10-inch greased loaf pan in a moderate oven (350° F.) for 50–60 minutes. Frost with white icing, if desired. Makes 1 large loaf.

CARROT CUSTARD PIE

$1\frac{1}{2}$ cups sieved carrots	$\frac{1}{2}$ tsp. salt
2 tbsp. honey	1 egg
1 tsp. cinnamon	1 tbsp. flour
$\frac{1}{2}$ tsp. ginger	1 cup milk

Cook carrots and rub through a sieve. Combine ingredients in order given and mix well. Line a piepan thinly with pastry and prick bottom with a fork. Turn mixture into pastry shell. Bake in a hot oven (450° F.) for 10 minutes. Reduce heat (to about 325° F.) and bake until the custard is set. Serves 5–6.

HONEY RAISIN CRUMB PIE

1 egg yolk, beaten	1 tsp. cinnamon
$\frac{3}{4}$ cup honey	$\frac{1}{2}$ tsp. ginger
$\frac{1}{4}$ cup hot water	$\frac{1}{4}$ tsp. nutmeg
$\frac{3}{4}$ cup bread crumbs	2 tbsp. butter
$\frac{1}{4}$ cup flour	$\frac{1}{2}$ cup raisins

Blend hot water with honey and add egg yolk. Mix flour, crumbs, and spices. Rub in butter. Place a layer of raisins in an unbaked pie shell, cover raisins with layer of nut meats, and pour honey-water-egg mixture over this. Top with layer of crumb mixture. Bake in a hot oven (450° F.) until crust browns at edges, reduce to moderate oven heat (325° F.) for 20 minutes, or until pie filling is firm. Serves 5–6.

PUDDINGS**MAPLE CORNSTARCH PUDDING**

- | | |
|---|---------------------------------|
| $\frac{1}{3}$ cup maple sugar (crushed) | $4\frac{1}{2}$ tbsp. cornstarch |
| $\frac{1}{4}$ tsp. salt | 4 cups scalded milk |

Mix the maple sugar, salt, and cornstarch. Add the hot milk gradually, stirring until smooth. Cook over boiling water until the mixture thickens, stirring constantly. Cover and cook 15 minutes longer. Turn into a wet mold, chill, and serve topped with small amount whipped cream (or whipped evaporated milk) and shavings of maple sugar. If maple sugar is not available, use brown sugar or honey. Serves 8.

FRUIT BAVARIAN CREAM

- | | |
|---|--|
| 1 envelope, or 1 scant tbsp.,
plain gelatine | $\frac{1}{4}$ tsp. salt |
| $\frac{1}{4}$ cup cold water | $\frac{1}{2}$ cup sugar |
| 1 cup fruit juice and pulp | $1\frac{1}{2}$ cups cream or evaporated
milk, whipped |
| 1 tbsp. lemon juice | |

Soften gelatine in cold water and dissolve over hot water. Add fruit juice and pulp mixed with lemon juice, salt, and sugar. Cool, and when mixture begins to thicken, fold in whipped cream or evaporated milk. Turn into mold which has been rinsed in cold water or directly into serving dishes. Chill. Serve with crushed fruit sauce if desired. Use canned pineapple, fresh or canned strawberries, raspberries, peaches, apricot or prune pulp, or any preferred fruit. Serves 6.

PRUNE WHIP

- | | |
|---|-------------------------|
| 1 envelope, or 1 scant tbsp.,
plain gelatine | 1 cup cooked prune pulp |
| $\frac{1}{4}$ cup cold water | 2 tbsp. lemon juice |
| $\frac{3}{4}$ cup hot prune juice | $\frac{1}{2}$ cup sugar |
| | 2 egg whites |
| | $\frac{1}{4}$ tsp. salt |

Soften gelatine in cold water. Add sugar, salt, and hot prune juice and stir until dissolved. Add sieved prune pulp and lemon juice. Cool, and when mixture begins to thicken, fold in stiffly beaten egg whites. Turn into mold that has been rinsed in cold water. When firm, unmold. Garnish with prunes and slices of fresh orange. Serve with whipped cream, if desired. Apricot or apple pulp may be used in place of prunes. Serves 6.

APRICOT FLOAT TAPIOCA CREAM

1 egg yolk	$\frac{1}{8}$ tsp. salt
2 cups milk	1 egg white
3 tbsp. minute tapioca	$\frac{1}{4}$ tsp. almond extract
2 tbsp. sugar	$\frac{1}{2}$ cup cream, whipped
18 dried apricot halves	
$1\frac{1}{2}$ cups water	
$\frac{1}{2}$ cup sugar	

Mix egg yolk with small amount of milk in top of double boiler. Add remaining milk, minute tapioca, sugar, and salt. Place over rapidly boiling water and cook 8–10 minutes after water boils again, stirring frequently. Beat egg white until just stiff enough to hold shape. Fold hot tapioca mixture gradually into egg white. Cool—mixture thickens as it cools. When slightly cool, add flavoring and cream. Chill. Serve in individual dishes with apricot sauce.

For sauce, soak apricots in water 2–3 hours. Remove apricots, add sugar to water, and cook 10 minutes, or until mixture is of consistency of thin syrup. Add apricots and simmer 5 minutes. Chill. Serves 6.

RAISIN BREAD PUDDING

2 cups milk	1 egg
1 cup soft bread crumbs	$\frac{1}{2}$ cup seedless raisins
$\frac{1}{4}$ cup brown sugar	1 tsp. cinnamon or other
$\frac{1}{4}$ tsp. salt	spices
2 tbsp. fat	1 tsp. vanilla

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Prepare the bread crumbs by pulling dry bread into small pieces. Mix milk, bread crumbs, sugar, salt, and fat, and heat in upper part of double boiler. Combine hot mixture gradually with beaten egg. Add all other ingredients, pour into greased baking dish, set in a pan of hot water, and bake 1 hour in moderate oven (350° F.). When pudding is partly set, stir well so that raisins will be well distributed throughout the pudding. Serves 4-6.

HONEY RICE PUDDING

$\frac{2}{3}$ cup rice	$1\frac{1}{2}$ cups milk
$\frac{1}{2}$ cup honey	$\frac{1}{2}$ cup raisins
1 egg	Pinch salt
Pinch cinnamon	

Boil the rice in salted water. Mix all the ingredients in the order given, except the cinnamon. Put into a buttered baking dish, sprinkle with the spice, and bake in a moderate oven (350° F.) until thick and brown. Serve either hot or cold. Serves 4-6.

INDIAN PUDDING

Cook together $\frac{1}{3}$ cup corn meal, 1 teaspoon salt, and 1 quart milk for 20 minutes. Add $\frac{1}{2}$ cup molasses and $\frac{3}{4}$ teaspoon ginger. Pour into a greased baking dish and bake in slow oven (300° F.) for 2 hours. Serves 4-6.

DRIED FRUIT BROWN BETTY

3 cups dried fruit (partly cooked and with some juice)	$\frac{1}{2}$ tsp. salt $\frac{1}{2}$ tsp. cinnamon
4 cups bread crumbs	$\frac{3}{4}$ cup sugar
2 tbsp. melted fat	

In greased baking dish place alternate layers of fruit and crumbs. Mix salt and cinnamon with sugar and sprinkle over dried fruit. Pour melted fat over top layer of crumbs, cover, and

bake in moderate oven (350° F.) for 40 minutes, or until fruit is soft. Remove cover toward last to allow crumbs to brown. Serves 6-8.

UPSIDE-DOWN CHERRY PUFFS

2 cups canned, red, pitted cherries, drained	$\frac{1}{2}$ tsp. salt
$\frac{3}{4}$ tsp. almond extract	$\frac{2}{3}$ cup sugar
1 tbsp. lemon juice	1 egg, unbeaten
$\frac{1}{3}$ cup shortening	$1\frac{1}{2}$ tsp. baking powder
	1 cup sifted all-purpose flour
	$\frac{1}{3}$ cup milk

Blend cherries, $\frac{1}{4}$ teaspoon almond extract, and lemon juice. Place in bottom of 6 greased custard cups. Blend shortening, salt, and $\frac{1}{2}$ teaspoon almond extract. Add sugar gradually and cream well. Add egg and beat well. Sift baking powder with flour 3 times. Add flour to creamed mixture, alternately with milk, mixing after each addition until smooth. Pour batter evenly over cherries. Bake in moderate oven (375° F.) 30-35 minutes.

Serve warm, upside down, with a cherry sauce made by boiling 1 cup cherry juice with $\frac{1}{4}$ cup sugar for 10 minutes. Garnish with whipped cream. Serves 6.

DANISH APPLE PUDDING

7 apples, pared, cored, sliced (7 cups)	$\frac{1}{2}$ cup water
1 cup granulated sugar	$\frac{1}{4}$ tsp. salt
1 tbsp. butter	3 cups soft bread crumbs
1 tsp. grated lemon rind	1 cup brown sugar
1 tbsp. lemon juice	$\frac{1}{2}$ cup butter
	$\frac{1}{2}$ cup chopped nuts

Place the first seven ingredients in a saucepan and cook until the apples are tender, or about 15 minutes. Combine remaining ingredients, blending with a pastry blender, or two knives, using a cutting motion. Place alternate layers of this mixture and the cooked-apple mixture in a 2-quart greased casserole, having on

top a layer of the crumb mixture. Bake in a moderate oven (350° F.) for 1 hour. Remove and serve either warm or cold, with whipped cream. Serves 8 to 10.

STEAMED MOLASSES PUDDING

Cream 2 tablespoons shortening and 2 tablespoons sugar together. Add 1 well-beaten egg. Beat well. Add $\frac{1}{2}$ cup molasses and $\frac{1}{2}$ cup hot water. Sift $1\frac{1}{2}$ cups all-purpose flour with $\frac{1}{2}$ teaspoon salt and 1 teaspoon baking soda. Add to rest of ingredients. Beat smooth and pour into well-greased steamed-pudding mold, allowing ample room for expansion. Steam two hours. Serve hot with lemon or foamy sauce (see p. 155). Serves 8.

STEAMED WALNUT-APRICOT PUDDING

1 cup sifted all-purpose flour	$\frac{1}{2}$ cup brown sugar (or honey)
1 tsp. baking powder	1 egg, beaten
$\frac{1}{2}$ tsp. soda	$\frac{1}{2}$ cup orange juice
$\frac{1}{4}$ tsp. salt	1 cup chopped, dried apricots
$\frac{3}{4}$ cup graham flour	(or dates, figs, or prunes)
$\frac{1}{4}$ cup butter	$\frac{1}{2}$ cup chopped walnuts

Sift together first four ingredients and add graham flour. Melt butter in a large saucepan, remove from heat, and stir in remaining ingredients, except fruit and nuts. Gradually combine liquid and dry mixtures, add chopped fruit and nuts, mix well. Steam pudding 2 hours in large greased mold or 1 hour in individual molds. Serve with hard sauce in which $\frac{1}{2}$ teaspoon grated orange rind is blended. Serves 8-10.

PUDDING SAUCES

QUICK CARAMEL SAUCE

$\frac{3}{4}$ cup dark corn syrup
 $\frac{1}{4}$ cup light cream
 $\frac{1}{2}$ tsp. vanilla

Combine corn syrup with cream and vanilla. Stir until well mixed. Heat to boiling-point and cook 3 minutes. Makes about $\frac{3}{4}$ cup sauce.

FRUIT SAUCE

- $\frac{1}{2}$ cup sugar
- 1 tbsp. cornstarch
- $1\frac{1}{4}$ cup fruit juice (may be
diluted with water)
- 1 tbsp. butter

Stir together the sugar and cornstarch and add the liquid (pure or diluted fruit juice). Cook until smooth and thickened, stirring constantly (about 5 minutes). Add butter (and sections of whole fruit, if desired). Serve hot. Makes about $1\frac{1}{2}$ cups sauce.

COFFEE SAUCE

- 2 cups strong coffee
- $\frac{3}{4}$ cup corn syrup, or $\frac{1}{2}$ cup honey
- 1 egg
- 1 tbsp. cornstarch

Simmer coffee and corn syrup (or honey) together for about 3 minutes. Pour, while boiling, over the well-beaten egg, which has been blended smoothly with the cornstarch. Strain and cool before serving. Makes about $2\frac{1}{4}$ cups sauce.

FOAMY SAUCE

- | | |
|-------------------------|--|
| 1 cup brown sugar | 1 tsp. vanilla |
| $\frac{1}{3}$ cup water | 1 cup whipping cream (or
evaporated milk) |
| 2 egg yolks | |

Cook sugar and water until a small quantity of it will form a soft ball when dropped into cold water. Beat egg yolks until thick and add sugar syrup gradually, beating constantly. Cool and add vanilla. Beat chilled cream or evaporated milk until stiff and fold it into the egg mixture. Chill sauce thoroughly before using. Serve with any hot pudding. Makes about 2 cups sauce.

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